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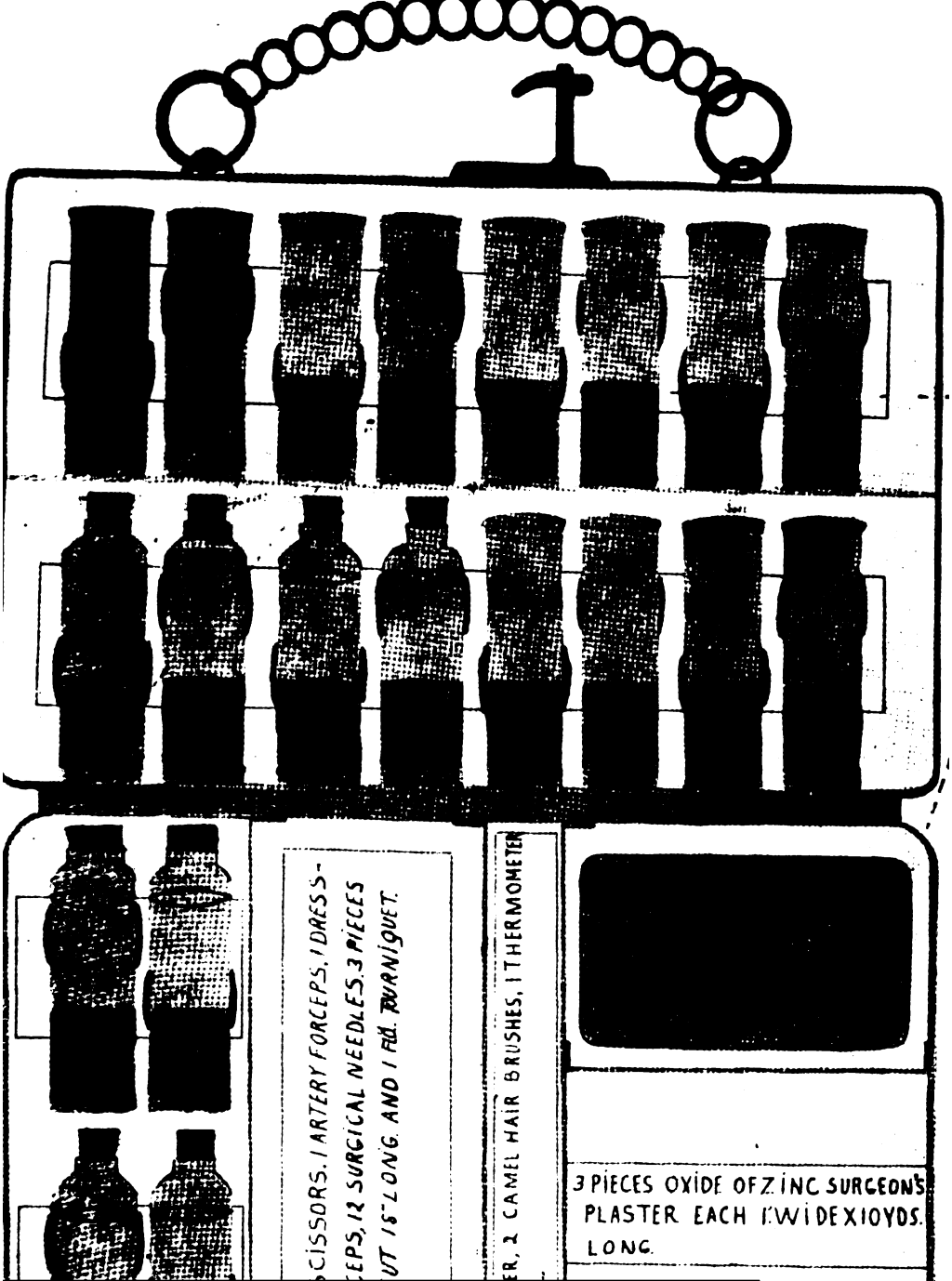
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Original Articles

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General Medico-Military Observations in the Late Balkan Wars*

BY CLYDE S. FORD, MAJOR, MEDICAL CORPS, U. S. ARMY.

HOWEVER deeply our present attention may be centered on the tragic scenes of heroic proportions now passing in Europe, we must await, perhaps for sometime, the last drop of the curtain for any conclusions of value. As all of the great nations which have led the modern world in the development of military art are now engaged in military practice, we will soon have, as a result, such a mass of experience in all military departments that new rules of technique will be formulated with neither the indication nor the necessity of consulting the minor precedents of the past.

It would seem almost presumptuous in the meantime to offer any account of that lesser tragedy in two small acts, which has been but recently presented in the theater of the Balkan Peninsula.

But while we are awaiting the accumulation of data from which more reliable conclusions may be drawn, it may be worth while to consider some general observations, made in a minor field, of conditions which, after all, may arise again.

The First War.

It will be remembered that the war between the Balkan Allies and Turkey occupied two theaters, in which each operation was of a somewhat different character.

The principal theater, which was in Thrace, was occupied by

* Read at the Twenty-third Annual Meeting.

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the stronger portion of the Bulgarian Army and the Turkish Army of the East which opposed the direct attack upon Constantinople.

The other theater covered the remaining portion of Turkey in Europe, chiefly Macedonia, where the well scattered divisions of the Turkish Army of the West were attacked by the Servians from the north and the Greeks from the south.

It was on the Thracian plains that the hardest battles were fought and the issues of the war finally determined. It was there that Constantinople was invested and all but subdued, and it was to this field that the attention of the Ottoman capital was immediately and vitally directed, and to which, also, my meager observations were limited.

The Thracian campaign was concluded in two phases: The first phase occupied the first two weeks of the war, from October 16 to October 31, 1912, and resulted in the investment of Adrianople, the complete rout of the Turkish Army of the East and its disordered retreat to the Chatalja line, the outer defenses of Constantinople, some 20 miles west of that city.

The second phase, much more prolonged by the operation of siege laid to Adrianople and the Chatalja line, and, interrupted by a long armistice, lasted from December to May and ended only with the conclusion of the war by the Treaty of London.

I arrived in Constantinople three days after the formation of the Chatalja lines and two weeks before the determined but unsuccessful Bulgarian assault which lasted three days and which is now known as the Battle of Chatalja.

As two weeks had elapsed between the termination of the first phase and the beginning of the second, all the wounded from the former had found their way into Constantinople and had filled to overflowing the military, civil and improvised hospitals.

At this time, however, although the army was relieved of its wounded, an epidemic of cholera, which had begun to rage during the first weeks of the campaign from a number of foci of infections brought by the Anatolian troops from Asia Minor, was at its height. Several thousand cases had been gathered at the rail head of the Chatalja lines at Haydemkui; several thousands more were being carried back and impounded at the rail base at San Stephano, and some of these were carried thence across the Marmora to Ishmed.

While the cholera camp at San Stephano has become known to the world as a great pest hole, and while it is true that the

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thousands of sick received there were at first without shelter and not well housed for days, two things must be said in extenuation of the harsh criticisms of the Turkish administration. First, the Ottoman Empire was tottering almost to a fall and all the resources of transportation and material were desperately needed and were duly impressed in the service of strengthening the beleaguered defenses of the capital; and, second, such expedients as were employed, though abrupt and unyielding, were efficient in accomplishing the purpose most desired, that of saving Constantinople from a cholera invasion.

All soldiers arriving in trains from the front, whether sick from any cause or as stragglers or deserters, were impounded together and treated alike, chiefly in San Stephano. The sick and well were kept together and were sheltered as facilities became available. After some days cases were taken to the mosques in Constantinople. St. Sophia gave shelter to several thousands, though a careful and efficient guard system kept the soldier separate from the civilian and saved the later from infection.

From my own experience in the care of more than 600 soldiers, under guard in a compound where all were sheltered in buildings, sheds or tents, 200 were not infected. Although nearly 200 died, of the 400 sick, the death rate diminished gradually from 50 to 1 per day in ten days and in direct ratio to the progress of rough but substantial sanitary measures.

At this time I will not presume to estimate the number of cases of cholera in the Turkish Army; although there may have been 10,000 deaths I am sure there can never be any reliable statistical data prepared. As for the mortality, I think that must always have been relative in this disease. It was about 50 per cent in my cases, but I believe that in an epidemic like that I witnessed, with the same virulence of the infecting organism and the same resistance of the patients, the mortality would not be greater than that of typhoid fever, if cholera were treated as typhoid fever is treated to establish its best mortality statistics.

The hospitals in Constantinople, in November, held as many as 20,000 patients, the greater number being sick or slightly wounded. The great majority of them received as good care as they were used to at home, and fared much better in medical attention.

The most active Turkish military hospital is Gulhani in Stamboul, under the direction of the German Professor Wieting

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Pasha, who has held his position as Medical Instructor in the Turkish Army for twelve years. A medical officers' post graduate school is conducted in connection with the hospital and under the same direction. In the laboratory enough typhoid vaccine was prepared to immune the entire Turkish Army at Chatalja. and a manufacturing department, largely operated by convalescent patients, prepared all the first-aid packages used in the army. The operating room, radiographic, kitchen and other appointments, were equal in every way to the state hospitals of Germany. The naval hospital was equipped without regard to expense and possessed all modern refinements, although other military hospitals ranged downward in scale to the barest necessities.

My services in an improvised military hospital in Constantinople covered a period of six months, with the admission of 500 surgical cases. When we began our service, our 120 beds were occupied by wounded who had come from the Second Army of the East, which had been engaged in the actions that began before Kirk-Kilisse, and which had retreated on a line north of the railroad. From there they had been obliged to proceed without rail transportation, and they were therefore the last to arrive in Constantinople and consequently were sent to the most recently established hospitals. At later periods some cases were admitted with recent wounds, but the majority of our patients were transferred from the permanent and better equipped hospitals to make room for their acute cases.

The character and source of the cases received in a military hospital must always be carefully considered in relation to any statistics or conclusions that may be drawn from them. I have seen statements of the character and frequency of certain classes of wounds in other hospital services with which I was familiar, which have no statistical value, but which, no doubt, may find a place in the medical annals of war and will be quoted as precedents for future sanitary preparation.

The relative proportion of rifle and shrapnel wounds has been largely discussed by both the lay and medical press, as the interest in such conclusions is based on the importance of determining the relative effect of infantry and artillery fire. A contributor of great eminence has drawn from a numerically limited experience the conclusion that the old ratio of rifle to shrapnel wounds has been reversed, and that while in former wars there were 10 per cent shrapnel to 80 per cent rifle wounds, in the war

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between the Turks and the Allies the ratio was 80 per cent shrapnel wounds to 10 per cent rifle wounds. Large numerical experience with the regular incidence of wounds show these conclusions to be erroneous and that the old predominance of rifle wounds remains, although there may have been a slight increase in the proportion of shrapnel wounds. In my own service at Tash Kishla, in 317 gunshot wounds there were 101 shrapnel and 216 rifle wounds, which is approximately 30 per cent for shrapnel and 70 per cent for rifle. In another group of 68 cases in the same hospital there was 37 per cent shrapnel wounds and 63 per cent rifle wounds. These ratios, however, apply only to these particular groups of cases, which from the circumstances of their collection at this particular place would give a greater proportion of shrapnel wounds than occurred in battle, because many of them were old infected cases and infection incurred with more frequency in shrapnel than in rifle wounds.

All Red Cross units in Constantinople found considerable difficulty in establishing their functions, because the military administration at that time found it most difficult to segregate a portion of the medical service suited to the capacity of each unit. Our American Red Cross party found a service only after locating it by personal search and then securing control through the greatest persistence of diplomatic effort. It is safe to say that any offer of volunteer aid, consisting only of professional personnel and without an organization prepared to furnish all of its necessary service, material and funds, would not have been accepted and could not have rendered any service. No Red Cross organization was permitted to serve outside of Constantinople, although two Red Crescent units from India, with complete field hospital and sufficient funds to provide for every need of their patients, including subsistence and clothing, were located midway on the line of communication between Constantinople and the Chatalja lines, and an Egyptian Red Crescent unit, with a complete field hospital and supplies under command of an Egyptian Colonel of the Medical Corps of the Egyptian Army, had a location at the rail-head of the Chatalja lines.

In spite of an effort of five months' duration, including several interviews with the Grand Vizier, diplomatic solicitations and repeated promises of forthcoming permission to visit the Chatalja lines during the time it was engaged in active hostilities, I failed in my purpose until after the beginning of the last armistice,

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but while the troops were still in position and prepared for renewal of hostilities.

An interesting figure there was the Sanitary Inspector General, Abdul Selim Pasha, General of Brigade in the Medical Corps of the Turkish Army, a man 50 years of age, who joined his command in November, 1912, a few days after the battle of Chatalja. He had just returned from the Yamen, an Arab province on the Red Sea, known as the graveyard of the Turkish Army, where he had gone fourteen years before as a Captain, to return from this single tropical tour as a Brigadier General. He might well be regarded as an expert on tropical tours of duty and well qualified to advise us whether or not our own troops might serve without peril three years in the tropics instead of two.

I regret that time does not permit a greater attention to this interesting and tranquil personality who ordered a motor car and sent me afield with his aid to view all the sanitary units along the right wing of the army after the commander-in-chief had denied himself the pleasure of giving us the liberty of his lines, and had even expressed his desire for my immobility. He is doubly endeared to me because several days later he with a formidable escort accompanied me in person for a two days' inspection tour along the left wing, in which we saw all of the camps and the sanitary organizations.

As there is always some discrepancy between the organization of the medical service of an army as it is laid down on paper and as it occurs in the field, the army at Chatalja was no exception.

Regulations allowed to each division one sanitary company of 100 men each and four field hospitals, but in the 12 divisions of this army there were found only 8 sanitary companies at one-half to two-thirds strength and 21 field hospitals, and therefore there were 4 sanitary companies and 27 field hospitals less than that provided for on paper. As the sanitary companies were at much less than full strength it will be observed that the sanitary service of this army was less than half of that provided for by regulations.

Field hospitals seemed to be commanded by medical officers—it is so stated in sanitary regulations—but there is with them a line officer with a "secretary" assistant who does all non-professional work, and he must be consulted on all non-professional matters by the medical officers.

Sanitary companies were commanded and administered by

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line officers, sometimes patriarchs of another martial era who were relegated to that retirement from the newer combatant system in which they could not be incorporated.

The strength of the Chatalja Army at this time was given by army headquarters to the medical officers of the command as about 400,000, but from other and less credulous sources I believe it was not much greater than one-half of that strength and perhaps not more than 150,000.

There was a Chief Surgeon with each Corps and one with each Division and, normally, a surgeon with each battalion. In all there were 300 medical officers and 150 pharmacists.

The incidence of the pharmacists occasioned the almost profligate plethora of apothecary scales, pill tiles, percolators and the gold labeled bottles in the complete array of a village drug store. Commissioned pharmacists in some form are found rather regularly in European armies; but in that of Turkey military pharmacists are essential bits of impedimenta, because in that country any professional qualification is attained with a formality which elevates the possessor distinctly above the single grade of the masses which form the army, and he must have a commissioned rank, even though it be only next to and just above that of the highest non-commissioned officer.

The sanitary equipment was not wholly uniform because of the disaster of the retreat on the Chatalja line in which all medical property was lost that was not carried as the equipment of the sanitary soldiers. It was all quite good enough and sufficient for the sanitary service of an army in permanent position, but not fit for a mobile army. Medical supplies were fairly abundant, for even after the great losses to the Bulgarians, the stores in Constantinople made up the deficiencies.

There were two base hospitals; one at the rail head and the other on a metalled road which ran behind the entire right wing. In the first there was a pathological and chemical laboratory in which the water from all the sources was examined and upon the findings the sources were marked as "potable," "fit for animals only," or "condemned." I saw evidence in the field of the execution of this plan.

The second hospital was in an old barracks at Yazi-Euren, which had been reasonably cleaned and was well equipped There was evidence that good surgery was done there. I saw a number of clean cases of herniotomy in a satisfactory state of canvalescence.

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Weiting Pasha, the German Medical Adviser, afterwards told me that pathological and all other non-emergency surgery had been prohibited in the field, but I could not help but admire the professional enthusiasm which lead to the violation of these instructions.

There were in isolation a few typhus cases; some of them occurring in the hospital and the others admitted from a certain Asiatic division in that zone. Typhus was considered both epidemic and endemic in this district, and months later, when I visited the base contagious disease hospital at San Stephano, most all of the typhus cases there had been received from this base hospital at Yazi-Euren. A medical officer going to Constantinople from this hospital discarded his underclothing in the process of personal renovation and these garments were appropriated and utilized by an undiscriminating but more needy friend who died several days later from typhus, without other cases occurring in the neighborhood. This story was told me by a medical officer who offered it as a military indictment of the body-louse as the transmitter of typhus fever.

All the command had been vaccinated against typhoid and prophylactic doses of quinine were daily administered. There was said to be no typhoid and comparatively few cases of malaria.

Latrines were of an individual type, to conform to the Moslem religious rites, with a shallow hole surrounded by a canvas screen, located more than far enough from the camp limits. Their use was enforced, when necessary, by a guard and any violation was punished by flogging.

Picket lines were scrupulously clean, and in one camp a picket orderly was charged with the duty of immediate, if not direct, removal of manure to a nearby incinerator.

First aid packets had been provided before the war and it was the purpose of the sanitary department to have every man equipped with one. This, however, was not done at the time of the mobilization and but few soldiers carried them during the first phase of the war. At this time, I was told, every soldier carried his first aid packet in a special pocket at the inside of the front and bottom of one skirt of his blouse, after the German fashion, and I found it there without exception in the men I inspected.

On the last day of my visit there were 800 reported sick with no deaths, and this number, with the lower estimate of the

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strength of the command as 150,000, makes a rate of about 5 per cent.

Without time for further details it may be said that the sanitary conditions of the Turkish Army at Chatalja were relatively as good as they would have been in an American Army which had to meet the same military conditions, and I am inclined to believe that the ineffectives from preventable disease were even less.

The Second War.

The Second Balkan War occupied the month of July, 1913, in two adjacent theaters in Macedonia, on the west and southwest of the Bulgarian frontier, with the Servians on the west and the Greeks on the east combined against the Bulgars.

After the campaign was well advanced the Bulgarian Army was on or advanced beyond the southwest frontier of their country with lines extending along the western and the western portion of the southern frontier, in which position it rested when the war was finished. I was assigned as a volunteer, by the Bulgarian War Department, to service in an evacuation hospital at Kustendil, a railroad town in southwest Bulgaria, about 10 miles from the Macedonian border and the headquarters of the Fifth Bulgarian Field Army.

I joined one week before the cessation of hostilities and remained for four weeks and until the hospital was practically evacuated. The location was in a high-school building in which there were less than 500 beds, although the hospital was rated at 700 beds. More than 1,000 cases were cared for at one time by quartering the less severely wounded in an adjacent building without beds. A surgeon from the civil hospital service, who was a reserve medical officer, was in command and he was assisted by two other reserve medical officers, one of whom was educated in London and spoke English. The remaining personnel was composed of several nurses trained in the civil hospital service, and volunteers of both sexes from the school teacher and student classes. There was one natural aid to the sanitary condition of this hospital in the occurrence of a very hot spring, for which the town had been noted since Emperor Constantine's day, that was utilized for laundry purposes by the gypsies who were impressed into the military service as "lavenderos," and through whose labors the hospital was supplied with clean linen. The functions of the hospital were to receive and care for only the wounded only from that portion of the line

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more accessible to Kustendil than to any other evacuation point, and to transfer them by rail to Sophia with as much expedition as circumstances would permit. Most all of our cases came from the Fourth Field Army which was operating in a zone with an advance base at Tzarvacella, about 30 miles distant, and all of the casualties from this zone were evacuated through Kustendil.

About 10,000 cases in all were admitted to this hospital and about 4,000 cases were received during my period of service. The severest engagements were fought during the last two weeks or the last half of the war, and for two weeks after the close of hostilities the service was still active because the patients from the last engagements did not arrive in less than four days and more than a week was required to evacuate the field hospitals and rest stations. For a week after the last engagements there was no evidence in our hospital that the war was over. The evacuation of our patients was a matter of great importance although it did not receive the care it merited, in the careful selection of the class of cases best suited for transportation. There was an evacuation service established at the railroad station in charge of a medical reserve officer, who had lately been the Bulgarian Minister in Paris, and he relieved the hospital of patients as rapidly as rail transportation for the facilities permitted.

The admission service of our hospital was divided into two divisions, with the commanding officer and one assistant in charge of one reception department and the English speaking assistant and myself in charge of the other. The commanding officer was in direct charge of the operating room and of all the cases admitted to the wards for major operations. The records were kept by an untrained clerical force without any supervision of the commanding officer, and although certain data may have been collected that would meet the demands of an accounting system, and which would finally evolve into a "statistic" of some form there was little that I could learn except from personal observation. The volume of professional work was so great that it was impossible for five doctors to give it careful scientific attention, and for a number of days there was little or no attention given to the wards by the surgeons as they were wholly occupied with the reception of patients.

In my first day's service my division, doing half of each day's work of the hospital, received nearly 500 cases which were treated in some sort of a way and passed into the wards. In

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my four weeks service my division admitted about 2,000 patients. During this period there were not more than twenty formal operations under anesthesia in the operating room from among all of the patients in the hospital. This seemed to be a surprisingly low proportion of major operations, but I am not sure that it will not hold in any similar situation in which all the casualties from one zone of action or line of battle arrive at the same station. The great majority of wounds need no formal surgical interference before the patient arrives at a base hospital where the operating facilities are of the best, and where he can be retained during the period of his convalescence. I conceive it to be the function of an evacuation hospital to avoid rather than to seek operative activity.

The cranial wounds which were trephined did not do well, and these cases should, as a rule, be hurried back to the base to the best surgical service available, where they can remain through convalescence or for autopsy.

Interference with wounds of the chest, save for an occasional drainage of the pleural cavity or a procedure for the relief of a septic condition, is seldom indicated in the field. We had no operations on the chest. Abdominal wounds were received either in a state of convalescence or with peritonitis, and of the latter cases, all subjected to operation died, while some of them, not interfered with, recovered. My conclusion in regard to the treatment of gunshot wounds of the abdomen in time of war is unqualified. They should not be meddled with surgically because they can never be carried directly to a good surgeon with a good hospital. These indications in civil practice are different because the conditions and not the patient are different. Wounds of the extremities were most frequent and compound fractures were the most serious. We had three amputations for infection and two of them died. Gas bacillus infections were unduly frequent and usually fatal.

Every case we admitted had passed through a field hospital and had received, in general, good and often skillful first-aid dressings. I saw no evidence, in these first dressings, of a ligation of a vessel for the control of hemorrhage, and in our hospital there were only two ligations, one for traumatic aneurysms and the other for a false aneurysm the character of which was revealed by an incision into a supposed abscess.

In our group of cases there seemed to be an undue proportion of compound fractures of the thigh which were certainly in much greater incidence than compound fractures of the humerus.

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These patients all deserved the utmost expedition in forwarding them to the base hospitals where the uninterrupted treatment that such cases require could be begun without delay. Most of the compound fractures were infected, but I saw few indications of general sepsis and only one case for which amputation was made and that with fatal result. The Bulgarian surgeon has a deep affection for plaster dressings for either simple or compound fractures and he did not hesitate to put on a heavy plaster cast for transportation to the next station where, of course, it was likely to be removed and again replaced. Any medical service in the field would suffer no loss if plaster of Paris were not supplied.

Many wounds were infected, although no data were kept on this condition, and I should say that not half the number were clean, and that among the infected cases the greater number were light and the septic conditions were not frequent.

The first-aid packet and its principles were known to the Bulgarians but the army was not provided with them at the beginning of the first war, although great stores were received from Russia during the first month of the campaign. A Bulgarian soldier who had returned from America "for the fun of the war" told me that the first-aid packet was "good stuff" and that "You give soldier first-aid packet first; afterwards his gun." Most of the men of his regiment wore their packets out and many others were lost, but his comrades were in great delight when they captured a Servian wagon train with a large number of first-aid packets to renew their supply.

As a word naturally must be said concerning the relative proportion of wounds inflicted by the various arms, it is significant to note that in this campaign, where much of the action was in fixed position with a greater employment of artillery than with a moving force, the rifle wounds were about 75 per cent with shrapnel wounds making up most of the remaining 25 per cent, which included shell, bayonet and pistol wounds. The incidence of bayonet wounds as found in hospitals is not to be taken as a measure of the use of this weapon in battle, because it leaves more dead on the field than wounded to be counted in the hospital. The pistol wound is entitled to only passing notice as it occurred in only one known case from which a Mauser pistol ball was extracted.

The question of the use of dum-dum bullets, in the form of crimination and recrimination, which seems to be a perennial one, did not fail to appear in that natural habitat of all human

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atrocities—the Balkan Peninsula. There was no indication or evidence in the 10,000 cases which passed through the Kustendil Hospital from a battlefield where soldiers fought with personal enmity and hatred, that dum-dum bullets were generally used, and in an exhibit of about 50 rifle projectiles removed from the body under my personal observation, only one, from a Greek rifle, showed that the jacket had been worn off the nose by scouring on a stone, although in this instance the projectile was found undeformed in the body.

The medical supplies and dressings were quite plentiful and more than sufficient for the needs in our hospital, which had been moved from Kirk-Kilisse, where it was stationed during the first war, and which had here come into possession of several hundred chests of Turkish medical supplies, with much of the contents still unconsumed.

The therapeutic agents most indicated and employed were iodine, benzine, alcohol, balsam of peru, and a nascent oxygen preparation, Merck's "Perlydrol," which has three times the strength of the hydrogen peroxide and is therefore three times as efficient in the same bulk. Iodine has its uses and is the most valuable of all antiseptics in military surgery, but its recent rise to fame had so impressed the Bulgarian surgeons that their gunshot wounds often had a hard run for the terminal stages of convalescence against the persistent and heroic iodine treatment.

There were several other hospitals in Kustendil; one for cholera; one for other contagious diseases; one for medical cases and two for wounded. One of the latter was the personal possession and under the direction of the Bulgarian Queen, who had quarters adjacent thereto which she frequently occupied; the other was of irregular military origin, commanded by a young Bulgarian Reserve Medical Officer, graduated in Russia, who had returned from the war from a gynecological service in the hospital of the University of Kiev.

The Queen's Hospital was most complete in its personnel, matériel, organization and administration and quite well prepared to do scientific surgery. It was in charge of a young American Surgeon, Dr. Anton Dilger, called by the Queen from the Heidelberg Surgical Clinic, where he was an assistant. In the early days of my sojourn it was so feared that Kustendil would fall into the enemy's hands that the Queen's Hospital was evacuated and the personnel ordered to Sophia. The matériel, however, could not have been removed, and I presumed to arrange to purchase it in the name of the American Red Cross and, accepting the

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non-transportable cases from the military hospitals, I proposed to act as a self-appointed agent of the American Red Cross to save the hospital and patients from the enemy. As an instance of the trust and confidence which one Balkan Nationalist reposes in another, I may tell that my Bulgarian colleague asked me if I really proposed to remain if the Greeks took the town. While my answer provoked his wonder, my judgment failed to arouse his admiration. In the course of a few days, as fortune favored the Bulgarian arms, serenity again reposed on Kustendil and the question of my reckless daring is still open.

The gynecologist's Military Hospital was most commendable in all its material and spiritual details, for its commanding officer showed a keen sense of organization, administration and surgical methods. I remember with great pathos my tragic struggles with him in communication, resulting from our mutual carelessness in the first choice of languages (which he had done much more to correct than had I) that occurred in a Teutonic zone of neutrality where he was much at home, although my presence was almost "verboten."

The cholera situation in the Fifth Army deserves even more than a passing word, as it was so directly connected with its accomplished Chief Surgeon, Professor Petroff, Director of the Royal Hygienic Institute of Sophia, First Lieutenant of Reserves and Chief Pathologist of the Fifth Army. In the 60,000 men in the Fifth Army there were 1,000 cases of cholera with 150 deaths, or 15 per cent mortality. These cases were treated in two different hospitals. Dr. Petroff strongly commends the administration of Tr. Iodidi, gtt. 5-8 in solution t, i, d. Bacteriological diagnosis was made in cases not clinically clear and no case was discharged unless the feces were vibrio-free. Twenty days was the longest period in which vibrios were carried after symptomatic cure. The therapeutic methods advocated by different doctors in charge of cholera cases were somewhat conflicting, as they included the administration of lactic acid, opium, bismuth, brandy only, and an opinion that artificial serum bore no good effect and that the less liquid ingested the better. The body and clothing of each patient were disinfected before he was discharged.

The lines of evacuation which brought the wounded to our hospital were somewhat interesting, because, while Kustendil was the headquarters of the Fifth Army, with its center only ten miles away, none of its casualties came to Kustendil, but instead the wounded of the Fourth Army, at least 30 miles

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away, became our patients. This arrangement was determined by the typography of the theater and the railroad connections which can easily be determined from a study of the map.

The great majority of our patients regularly were carried four days in bull carts to reach the hospital, and though some arrived with "bed sores," incident to the journey, the means of transport were considered regular, and there were no complaints, as no ambulances were provided for the line of communications. But, after all, the humility of the bull cart is not to be despised, for patients who began their journey in motor trucks begged to be allowed to walk or take their chances in catching a bull cart transportation which did not bounce them about so violently.

An Austrian sanitary train with full equipment and regular personnel, commanded by a Major of the Austrian Army Medical Corps, made daily trips to Sophia with 200 patients and further demands for evacuation of the sick and wounded were met by ordinary freight trains.

The Bulgarian Medical Service has its faults; if sins they be, they are sins more of commission than of omission. The Bulgarian soldier may not suffer quite as much from its shortcomings as the more sentimental of his Western critics and sympathizers think, because his sanitary organization is built upon two great accepted principles:

1. The false economy of weakening a military force by diverting its resources in an attempt to escape the natural consequences of its activities.

2. Absolute resignation to the principle that a wounded soldier is a fellow out of luck.

The Bulgarian War Department calmly and dispassionately confessed the limits of its ability to divert its funds from the necessity of guns and battalions to the luxury of ambulances and doctors.

Besides, there are only 600 doctors in Bulgaria, and less than 200 of that number remain with the army in its peace strength of 60,000 men. In time of war, with an army of 300,000, there can be no more than three times the peace strength of doctors, even though all of them are in the military service, as they are expected to be, because there is never a closed season to the military conscription.

The Sanitary Department has an organization which the Bulgarian General Staff considers consistent with the needs of the army, but there seems to be a defect in the failure to provide aid to secure an efficient system of sanitary administration. As

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the Sanitary Department is not wholly administered by the General Staff, and as it is not provided with much of a system for internal administration, it sometimes seems to fall between the upper and the nether stone. There are regimental, field, evacuation and base hospitals and sanitary trains which are mobilized efficiently, but they sometimes seem to get away from the touch of a guiding hand after they have become involved in a few evolutions. I have seen a well-administered regimental hospital over a mile down in the valley from the position of the regiment on the mountain top, connected with the regimental position by a telephone and with an operator at the hospital constantly in attendance through day and night. I have known a regiment with its medical service in each of its three battalions entrusted to a dentist in one and a medical student in each of the other two. I have seen a major and a lieutenant-colonel of the regular medical service on duty as regimental surgeon and as commander of a field hospital, respectively, in an army with a first lieutenant of reserves as the chief surgeon.

Bulgarians, as soldiers or patients, while not always lovable, are generally admirable. Their fortitude and endurance, coming from their system of frugal living as peasants, cannot be far surpassed in other races. Their country is aptly called a "Peasant State," for land-owning is the peasant's passion and the absentee landlord is an unknown institution. Besides making their clothing from the wool, the milk of their sheep is their meat, and the grain in their field gives them bread; their peppers and onions and garlic provide the stimulation that some other races seek in alcohol.

I believe that the allyl compounds which give the characteristic flavor and odor to garlic and onions are important agents in their alimentary sanitation, and are fitting adjuncts to the sheep casein, which when coagulated by the Bulgarian bacillus known as Youghourt. This bacillus, by the way, though advertised by Metchnikoff, was discovered by a Bulgarian, Dr. Stamen Gregoroff, a student in Geneva working with Professor Massol in 1887-88. Dr. Gregoroff isolated his bacillus in a study in which he suspected its quality and sent a culture to Metchnikoff for confirmation. With the garlic and onions, as with sour milk, the salubrious action in the alimentary canal is evidenced by the deodorization of the feces. But when I advised a cultivated officer of the army of a people, boasting more of their civilization than do the Bulgars, to adopt this method of diet, he said he preferred his own alimentary iniquities to a method

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of salvation which transferred an objectionable odor from his feces to his food. From my observations among the Bulgars, I am sure that in selecting soldiers the garlic eaters are to be preferred, and I have no doubt that the future changes in national frontiers will be effected more permanently by those who eat garlic than by those who do not.

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Drill Regulations and Service Manual for Sanitary Troops U. S. Army 1914.

By Gustavus M. Blech, Captain M. C., Ill. N. G.; Executive Officer Field Hospital Company No. 1.

THE last issue of the Drill Regulations for sanitary personnel appeared about six years ago (1908). Considering the fact that since then many ambulance and field hospital companies have been organized in the National Guard as well as in the Army, those regulations have proved inadequate; nor can it be said that they were originally perfect as regards the very things they taught.

It is but natural that all of us, especially those in charge of other than regimental sanitary units, should feel the need of explicit directions for formation, parades, ceremonies and to a certain extent also drill.

Drill regulations are supposedly the infallible guides which must be followed implicitly and not deviated from even one step. Yet with the old regulations this could not be done and we ourselves have resorted to "improvisations," which have since become official in the issue which has just reached our desk.

The 1914 Regulations contain twice as much reading matter as the 1908 edition. The old edition has been revised, and the manual of the bugle and a special part devoted to divisional sanitary units have been added.

As the book is one which will sooner or later be in the hands of all Army and National Guard medical officers, only such features as appear of special interest are here discussed.

In the drill regulations (school of the soldier) no great change has been made. Salute with the right hand is described as two motions, the first motion being bringing the hand to the headdress, the other dropping the hand. No separate commands for these two movements are indicated and in drilling a detachment of some size it is not likely that all will drop their hands at the same time. While this is a drill peculiar to all troops without arms, it may not be amiss to point out that inasmuch as the command for the second movement has been abandoned, some suggestion for the length of interval between the two movements would be appreciated.

In the school of the detachment the litter drill remains the

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same. I had hoped that a command would be introduced enabling the litter bearers to change from the right to the left shoulder when the litter is carried on the shoulder, as on marches, when for some reason the litter is not at the "carry," the men will shift the litter when the right shoulder becomes tired.

The organization of "sections" (two litter squads) is very desirable, when marching with infantry in column of Fours, and on roads marching in column of litter platoons (four litters at the carry) is impossible.

For obvious reasons the counting off by fours for drill and formations without the litter and by litter squads for litter formation and drill is preferable to the older method of counting off by twos.

The word *platoon* with sanitary troops seems to have no definite meaning. In marching with the litter at the carry, which is very frequent even in mixed parades and reviews, we note that an entire company is divided into two or more platoons, while on another page four litters also represent a platoon.

To make the importance of this criticism clear one need but think of a field hospital company without wagons participating in a brigade review.

The field hospital company has twenty litters. Arranged in column of sections on the left of the brigade when first marching off to "pass in review" the formation after the second turn must be such as to conform with the company front of the infantry. Assuming that ten litters with their guides, file closers and non-commissioned officers would correspond to the front of an infantry company, the field hospital company can be formed in double rank. If each half be designated a "platoon," the command "platoons—sections left (right)" will be needed, each platoon commander commanding "sections left (right)" in due time. Of course the men can be cautioned and will understand but this inconvenience could be avoided by dividing the company in two detachments, or better still by finding some other designation for four litters than the word "platoon."

The ambulance company has received careful attention. Diagrams are given showing the position of every officer and enlisted man in all possible formations, mounted as well as dismounted. Field hospital companies should conform to the same formations we are told. This is a physical impossibility, for the ambulance company has fewer officers, more men and seven more vehicles, to say nothing of pack mules, than the field hospital company. Where to place the supernumerary officers in the column by

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following the ambulance company formation remains a puzzle to me.

In the useful appendix is a list of the personnel of ambulance and field hospital companies but nothing is said of musicians (trumpeters). Neither is mention made of them in the Manual of the Medical Department. Were it not for the diagrams one would have no official information that there is such a thing as a musician in the sanitary corps.

Indirectly the drill regulations betray a condition of affairs which I believe all will want to see remedied. As each company has a first sergeant—I refer to line companies—we, too, had one sergeant, first class, act as such. We find in the present regulations mention of one sergeant, first class, acting as first sergeant. This mere allusion in the list is the only satisfaction as regards the status of the "top sergeant." When we consider that in many European armies the non-professional duties of ambulance and field hospital companies are carried out by commissioned train officers, then it seems very little to ask that our "acting" first sergeants be given the rank of sergeant major. Indeed sooner or later we will have second lieutenants with sanitary units both for the pharmacy and quartermaster departments, for, I venture to predict, in our next war many prevailing notions about the sufficiency of medical officers will receive a severe jolt. I base this on the experiences of the campaigns in Manchuria and on private letters received from the present German campaign in Russian Poland.

The present surgeon-general has not been in office long enough to bring about sweeping reforms in the medical* corps, but there is much that needs careful consideration before it can be said that we are really prepared for a campaign of magnitude. However, the present Drill Regulations show that we are progressing rapidly as a technical corps in organization and efficiency and the Board of Officers which has worked out the present manual deserves unstinted praise and the thanks of the service.

* Why add here "hospital" corps when the word "medical" could be made to embrace the entire service, the same as the term "engineer corps" applies to officers and men alike?

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The Indian Saint John Ambulance and the European War*

By Major R. J. Blackham, C. I. E., V. H. S.

THE St. John Ambulance is the only Red Cross Society in India and has taken up with the greatest promptitude its duties in the present European crisis.

The society has during the past five years built up a position as a national institution in India and has established in this brief period no less than three hundred centers in every corner of the great Indian Empire.

The value of this well-thought out organization became at once apparent on the outbreak of the present war.

Forty-eight hours after the news reached India a circular letter was issued to all centers of the association pointing out that England was then at war and that there was evidence of intense enthusiasm on the part of the public and a great desire to help our troops in the field.

One of the most important functions of a Red Cross or Ambulance Society is to direct such patriotic enthusiasm into correct channels, and the letter suggested that centers of the association should form a ladies' committee with the following objects, viz.:

(1) To collect funds.

(2) To collect gifts of articles likely to be of use to troops on service.

(3) To collect material for ambulance detachments should such be organized.

A depot for the reception and distribution of gifts would be organized at Bombay by the Indian Council.

This letter was promptly followed by a meeting at the headquarters of the Indian government. Addresses were made by Surgeon General Babtie, Director of Medical Services in India, and Surgeon General Sir Pardey Lukis, Director General of the Indian Medical Service. These addresses outlined a scheme for the collection of gifts likely to be of use to troops on service. They were soon followed by the publication of a list of articles compiled by Surgeon General Babtie in conjunction with the

* Special article written for The Military Surgeon by Major Blackham, Honorary General Secretary of the Indian Branch of the St. John Ambulance Association, Grand Priory of the Order of the Hospital of St. John of Jerusalem in England. The article is of date of October 19 and is written from Jutogh, near Simla, India.

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Chief Lady Superintendent of the Queen Alexandra's Nursing Service.

In a letter distributing these lists it was pointed out that they were mainly meant to supplement articles already provided by government and not to supply deficiencies. It had been found in practice very convenient that in the time of war both nurses and medical officers should have extra articles of this kind which are absolutely at their disposal without having to account for them officially.

The Indian Council forthwith organized a depot at Bombay where all goods were received, classified, suitably packed and handed over to the military authorities for dispatch to our troops on active service. The railway authorities carry these Red Cross gifts from every part of India free of all charges.

With reference to personal service, the Indian Council has under formation, in every station in India, voluntary aid detachments, consisting of persons holding its certificates. These detachments consist of: (a) A commandant who is, if possible, a medical practitioner; (b) at least two men trained in first aid; and (c) seven women who must hold both the first aid and nursing certificates. This personnel is registered, recognized and inspected by the military authorities, and the Director of Medical Services in India is prepared to employ them at railway rests, camps, etc.

The Ladies' Committees of the St. John Ambulance Association in India are only concerned with the sick and wounded, as the provision of gifts and comforts for actual combatants, however laudable, is no concern of a Red Cross Society.

Up till the 9th of October the St. John Red Cross depot had shipped or had at the docks:

British units	315
Indian units	139
100 bed units	5
Miscellaneous	87
At war gifts depot	50
Total	596

Of this total to 9th October, 502 were ten bed units, i. e., sufficient for over 5,000 beds. This does not include Karach shipments, estimated at 50 units.

Of these units no less than 51 have been sent from Simla,

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which heads the list of donors, and indeed has supplied as many as two individual stations.

The response to the appeal from all parts of India has been so remarkably prompt that Surgeon General Babtie, the Director of Medical Services, has decided to revise the list of articles sent and has framed a list of what are now called replacement units for ten beds.

These units contain all articles which it is necessary to repeat or replace.

From letters which have been received from various parts of India an impression appears to exist to the effect that the war services of the association will come to an end when a certain number of ten bed and complete hospital units have been dispatched to the theater of war. This impression is erroneous and there remains the question of replacement of wearing apparel, bandages, dressings and the like.

In addition to the hospitals in the theater of war there will be hospital ships plying regularly between Bombay and Europe, as well as ambulance trains in India which will require comforts on a special scale. The association, moreover, will be required, probably, to provide comforts for rest camps and rest stations on the railways. For all these purposes we require a steady stream of replacement units to our war gifts depot at Bombay.

In addition to the ordinary units the Indian branch of the association has designed what is called the Red Cross bag.

These bags are intended for *invalided* British and Indian soldiers when they leave hospital. The bag for the British soldier contains 1 pajama suit, 2 flannel shirts, a pair of soft slippers, socks, a pipe and tobacco or cigarettes, a tooth brush, a letterette block and indelible pencil, housewife, work book, soap and towel. That for the Indian soldier contains 1 warm shawl, 2 flannel vests, 2 pairs of socks, housewife, tooth sticks, 1 packet of cigarettes or bidees, a batnu of beetle nuts, a vernacular book, soap and towel.

All articles are packed and pinned up in the towel and the packet put into a bag made of khaki drill measuring 18 inches by 15 inches and weighing 4½ pounds, marked with the Geneva Cross and inscribed "For One British Soldier," or "For One Indian Soldier." For Indian officers it is suggested that the "Batoos" of rather superior quality should be supplied separately.

It will be gathered from the foregoing that the Red Cross services in India will not end till the war does.

The government of India has decided that if called upon to

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perform military duty exceeding 24 hours in duration away from their homes, the trained personnel of the St. John Ambulance Association shall be granted allowances at rates noted below to cover the cost of rations and housing: Headman, Rs. 5/— per diem; Europeans and Anglo-Indians, Rs. 2/— per diem; Indians, Rs. 1/— per diem.

The Indian Council has prepared a register of men and women volunteering for service in time of war, showing name, religion or caste, age, postal address, province, ambulance qualifications, profession, languages spoken and capacity in which willing to serve.

The association's system of providing gifts and comforts for the troops, British and Indian, has received the approval of both the Viceroy and the Commander-in-Chief, and the association has brought home to Indian residents that "Charity begins at home," and that every rupee collected by the Indian Council of the St. John Ambulance Association is devoted to the benefit of India and Indians.

The association has also been asked to assist the military authorities in obtaining recruits for the Army Bearer Corps during the present war and has been very successful in this direction. Indeed the services of the St. John Ambulance have become so valuable to the Governor of India and the military authorities that Major Blackham, C. I. E., Honorary General Secretary of the St. John Ambulance Association for six years, has been placed on special duty by the Commander-in-Chief to direct and control all Red Cross work in India. This is probably the highest recognition any similar society has obtained.

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The Best Training for the Hospital Corps for the Fleet*

By F. E. McCullough, Surgeon, U. S. Navy.

EVEN in the time of peace the efficient care of the sick and injured in a military service depends in a great measure upon the existence of a properly trained hospital corps. And if this be true during the non-existence of war, it becomes increased ten-fold in the midst of an action.

There will be but scant time for the member of the hospital corps to ascertain from others what were best to do for the casualty which confronts him during action. If he has not been properly instructed in his vocation or has failed to receive the training necessary to develop his initiative, the lives of those who are dependent on him for succor will be jeopardized.

It is no easy task to provide a military service with a highly trained hospital corps, and there is probably greater difficulty in accomplishing this for a navy than there is for an army, as mankind is still far from being aquatic in spite of his vaunted mastery of the sea. Outside of the medical profession, the number of individuals in civil life who are qualified to perform all the duties required of the hospital corps, is negligible. The trained nurse can respond to a part of these duties, and the pharmaceutical graduate to others, but even if an individual were qualified both as a pharmacist and a nurse, he would still be deficient in many of the most important duties required of a member of the hospital corps. And as it is not possible to recruit this corps from civil life, it becomes incumbent upon the military establishment requiring this service to create such corps, by such system of instruction, as, in its judgment, will accomplish the desired result.

Vocational training is by no means new in the navy. It is indeed merely an expansion of that successful system of training long used at the Naval Academy to qualify officers of the line. The importance of academic and vocational training in the navy lately emphasized by Secretary of the Navy Daniels, made it possible to evolve and establish a system for training the hospital corps of the navy, which is now producing excellent results.

A systematic course of instruction was already in effect, hav-

* Read at the Twenty-third Annual Meeting.

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ing been prescribed by general order. A training school at the Norfolk Naval Hospital was established in 1901 (moved to Washington in 1903), but was discontinued when the general order (which required instruction at all the hospitals and on all the larger ships) was issued. Both the school and the instruction embodied in the general order were productive of good results, but were far from being satisfactory, as inadequate teaching equipment, improper environment and lack of uniformity of instruction existed both in the training school, hospitals and ships.

The "Training School for the Hospital Corps of the Navy" was established during the present year at the Naval Training Station, Newport, R. I., and experience has already demonstrated that no error of judgment was made in this selection. The ultimate and primary object of this training is to equip its membership for *duty with the fleet.* Hence it becomes necessary to approximate that environment in which the member of the hospital corps must finally operate, and for which this corps was created. His former mode of living was radically different from that for which he is destined, but no more so than that of all other recruits entering the naval service. The essentials of a maritime military life must be acquired, and adaptation to the new environment accomplished. Until this is accomplished his usefulness to the naval service will be small. That discipline absolutely necessary for the existence of a military service must be appreciated and strictly adhered to from the very moment of the recruit's entrance into the service. All this is more readily acquired at a training station (which was established for this particular purpose) than it could possibly be at a naval hospital, whose normal function is the care of the sick. At the Newport Naval Training Station are to be found practically all of the vocational schools of the navy, and the spirit of emulation and friendly rivalry which would not be possible elsewhere.

The completion of the new naval hospital at Newport and the abondonment of the old former hospital building on the station, left this building available for the new training school for the hospital corps. The well lighted and ventilated wards were readily converted into laboratories and lecture rooms, and these were remodeled to provide for a class of one hundred students, or twice that number by dividing the class into two groups.

Upon his arrival at the station, the recruit is housed in the receiving buildings for a period of three weeks, during which

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time he is isolated from the remainder of the station to minimize the probability of introducing contagious disease. During this time his instruction is in adaptation to his new environment and naval and military subjects. At the completion of this period he is transferred to the apprentice barracks and his vocational instruction, lasting six months, begins. He is housed in quarters which closely approximate those aboard ship and this continues as long as he remains on the station. From reveille to 9 a. m. he performs the same duties as his fellows of the seaman branch.

Instruction in practical pharmacy, chemistry and microscopy is provided for in laboratories which formerly comprised two hospital wards and six rooms. The equipment of the Department of Pharmacy of Columbia University (with variations suited to an abridged course) has been used as a guide. To the advice of Prof. George Deikman (professor of pharmacy) and his assistants at Columbia University, the present excellent system of modern pharmaceutical instruction used in the school is largely due. The student has ample opportunity to become familiar with every article embraced in the pharmacopeia, from the crude drug to the finished pharmaceutical product, and he is taught to make every variety of preparation from the simples to the extremely complex. Each student is provided with abundant space at the laboratory tables and each space is equipped with a selected supply of medicines, chemicals and implements for chemical and pharmaceutical procedures.

A course in microscopic and bacteriological technique sufficient to enable these students to be of practical assistance to the medical officers of the service is given.

The lecture room, formerly a large ward, is equipped with a hundred desks and settees; here all didactic lectures are given and recitations are heard. The school is provided with all necessary equipment required for teaching the subjects its curriculum includes (quoting its prospectus):

"*Anatomy and Physiology,* instructions by lectures and demonstrations on the skeleton, manikin and outlines on the human body. Bones, principal arteries, veins, large muscles (with their action) and the joints. Surface marking of the arteries. Viscera, gross anatomy with the demonstration on the manikin and viscera of the cow and sheep.

First Aid and Emergency Surgery.—Lectures and drill on the control of hemorrhage, the resuscitation of the apparently drowned and from electric shock. The care of casualties aboard ship and with landing and expeditionary forces. Transportation

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of the wounded and general consideration of surgical emergencies.

Hygiene and Sanitation.—Lectures on field hygiene, hygiene of the march, hygiene of food, water, mess management and personal hygiene.

Clerical Duties.—Lectures on the Department of the Navy, Navy Department bureaus and personnel of the Navy. Requisitions and voucher forms, blank forms of the Medical Department of the Navy, such Bureau of Navigation forms as are used in naval hospitals. Practical work in compiling forms.

Pharmacy.—The manufacture of all pharmaceutical preparations in the laboratories by the student under guidance of an instructor.

Chemistry.—A laboratory course in elementary chemistry. A course in urinalysis (qualitative and quantitive). A brief course in the detection of preservatives in foods.

Materia Medica and the Action of Drugs.—Instruction by lectures and examination of all the materials used in medicines in the materia medica museum. The action of drugs by lectures and demonstrations on the lower animals. Students are instructed in the administration of anesthetics at the station dispensary. An elementary course in botany, using the growing plants on the station for field and laboratory purposes. This course will be sufficiently comprehensive to enable the student to understand the pharmacopeial description of official plants.

Toxicology.—Lectures on poisonous doses of medicines with their appropriate antidotes.

Foods and Cooking.—This course will include lectures and demonstrations on the usual articles consumed as food. The elementary chemistry of foods. Their economic and hygienic value. Their use in health and disease. Practical demonstrations of cooking for the sick are given.

Litter and Stretcher Drill.—Litter and stretcher drill on the drill grounds in accordance with the drill regulations for the hospital corps of the U. S. Navy.

Tent Erection.—The installation of the field hospital, camps and camp life, duties with expeditionary forces. Embalming and the disposition of the dead."

The course comprises six months; instruction begins at 9 a. m. and lasts until 4 p. m., except Wednesday and Saturday afternoons and Sunday. On Wednesday afternoon clothing and "small stores" are drawn, time is given for "scrub and wash clothes" and bag inspections are made. The time devoted to

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each subject depends upon the practical need of each subject and the possibility of continued instruction of each subject in the course after its completion and the transfer of the student to a hospital or a ship for duty. Two subjects to which particular attention is given are practical pharmacy and materia medica, as neither hospital nor battleships are adequately equipped for such instruction. As nearly all ships are provided with operating room and sick-bay, opportunity is afforded for continued practical instruction in many subjects. The dispensary with its necessarily compact supply of finished products, affords comparatively little opportunity for comprehensive pharmaceutical instruction.

The large drill grounds on the station provide for litter and stretcher drill, which is not only valuable vocational instruction, but also a type of physical exercise which tends to improve military bearing. It further affords a rest from class-room studies and provides mental recuperation.

The proximity of the commissary and cooking schools of the station, render possible an unusually complete course in cooking and mess management.

Hypothetical casualties, especially those which are likely to occur during a naval action, are used as a basis for first-aid instruction. The members of the class simulate personnel casualties and the station's sick list is utilized for demonstrating hospital duties.

During the school's course leave is granted only on Friday evening, Saturday afternoon and Sunday. On Saturday morning general muster and inspection are held. The evening hours are devoted to study periods or instruction in academic subjects. No laggards are tolerated and the unfit are soon eliminated—either discharged from the service or transferred to other ratings, if the fault be only inaptitude for the hospital corps.

For each twenty-five students, one hospital steward is required as demonstrator. A pharmacist gives the morning instruction in pharmacy, chemistry and clerical work. One medical officer's entire time is required for lecturing and administrative purposes.

When service conditions permit, the graduates are first transferred to hospitals for duty, where they will receive further instruction and acquire further experience in practical nursing, the operating room and all hospital duties. It is not contemplated that their instruction shall cease on graduation from the training school. The instruction prescribed in the general order of January 18, 1911 (four periods weekly), will continue until

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the apprentice has reached the grade of hospital steward, and the minimum time in which this grade can be reached is three years.

Their previous training should thoroughly prepare graduates for the instruction they will receive at their subsequent assignments. The "Handy Book for the Hospital Corps," recently issued by the Bureau of Medicine and Surgery, provides for uniform and systematic instruction.

It is believed that the Training School for the Hospital Corps of the Navy established by the Department, together with that instruction given by medical officers and the senior members of the hospital corps at naval hospitals and ships, will provide the best training for the hospital corps of the Navy, and that this corps, for many years noted for its efficiency, will maintain its high place among the naval services of the world.

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Evolution of the Sanitary Service in the National Guard and Some Defects in Its Administration*

By Fred. O. Waage, Major M. C., Pennsylvania National Guard.

Aside from differences due to environment and conditions peculiar to states, the aims, the problems and the general fabric of the various Sanitary Services are similar or identical and this paper has been written with this in mind.

A study of the evolution of the Sanitary Service of our National Guard is not only interesting but instructive, as it offers avenues of suggestion and improvement in the present and future development of the service.

Although the rapidity of the development during the last twelve or fourteen years has differed in the various states, there are certain main factors which have been and still are affecting the evolution of the Sanitary Service in general. Taking, as nearly as possible, the order in which these factors have been influential over this period of time, we have the following:

(1) The gradual increase of knowledge generally along lines of sanitation, hygiene, cause of specific diseases and prophylaxis.

(2) The realization of the inadequacy of our Sanitary Service, both in its quality, scope and administration, by its actual application during the Spanish-American war.

(3) The following, as a standard, the progressive principles of the Regular Army Sanitary Service, and, later on, the actual instruction furnished by that service.

(4) The realization by a number of medical officers throughout the states, of the importance and necessity of the National Guard as an accessory body of trained troops in time of national need.

(5) The realization that physical efficiency of the men on the firing line and on the marches is essential to the success of arms and paramount with the knowledge of tactics and marksmanship.

(6) The perceiving that this physical efficiency could only be reached and maintained by the application of a system of rules governing the sanitation of camps and the personal and military hygiene of the soldier under the supervision and control of the medical officer.

(7) The bringing out by the attempted application of these conceptions to actual conditions of the following obstructions and necessities, which have been, and in some states still are, potent factors in the evolution of the Sanitary Service.

* Read at the Twenty-third Annual Meeting.

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The obstructions are: (a) Lack of co-operation with the progressive medical officer on the part of command. (b) Incompetency of officers of military units, of surgeons and adjutants general of states, due to their ignorance on sanitary matters and lack of progressiveness, or to their military incompetency as political appointees to responsible military positions. (c) The generally accepted idea that the sanitary troops should only exist and act as aids in treating men after they became sick or wounded.

The necessities are (a) the education of company officers of regiments and their officers in the value and necessity of sanitary innovations; (b) the increase and authority of the medical officer to recommend, direct and control changes, improvements and administration of sanitary matters.

(8) The last factor affecting the evolution of the Sanitary Service is the realization of the necessity for co-ordinating our Sanitary Service as nearly as possible with that of the Regular Army, since in time of war the two forces would act in conjunction. The necessity of bringing the Sanitary Service of the states to such a condition of efficiency along identical lines of administration, equipment and training that, when need arose for combining the two forces in actual service, endless confusion would be avoided, the physical efficiency of the troops would be maintained, the sick and wounded would be properly cared for and transported and the ravages of preventable disease would not blot the page of the military history of the National Guard. A short survey of how these factors actually influenced our Sanitary Service in its development is necessary to the object of this study. The progress of evolution has varied with the different states so that its various phases have existed simultaneously throughout the states, depending on the interest and ability of medical officers and the amount of resistance to sanitary innovation. The reaction of the Sanitary Service following the Spanish-American war was extremely slow. A few progressive medical officers here and there throughout the various states, who rightly interpreted the practical inefficiency of our Sanitary Service during the war, enthusiastically started to improve the service in their own regiments. These scattered efforts acted as a leaven, which has been acting with increasing force ever since, so that, generally speaking, the improvement in the Sanitary Service of Division and Brigades is a product of the regimental work shops, where usually one or two lone laborers

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worked to infuse their regiment, their brigade and their division with their conception and conviction of the necessity for a *practically efficient Sanitary Service.* In many of the states, the brigade and division medical officers and the adjutants general have accepted the innovations introduced and successfully proven by progressive regimental medical officers, and have applied them uniformly to the entire force. In other states, however, these superior officers, while admitting as improvements the regimental changes, have blocked further progress by remaining passive or refusing to make the changes uniform and general. The old régime has been giving ground slowly; the military habits of years during the time in which the National Guard organizations of the country have been politico-social organizations, have been tenacious, and to this day, in many of our states, the most vital obstructions to progressive efficiency are these self-same fibers of the old régime. In the evolution of the Sanitary Service by regiments, the process of education and change has been based on three principles: first, Uniformity; second, Sanitary Discipline; and third, Control in sanitary matters by the medical officer, which last is the real answer to the vexed question of the authority of the medical officers. These three principles usually worked out as follows:

Uniformity applied to the arrangement of the impediments and accessories of the company kitchen, for instance, led to uniformity of methods in the care and preparation of food, in camp hygiene and in the disposal of wastes. This led to and made possible the personal instructions of cooks and quartermaster sergeants, which in turn made necessary the education of the company commanders, in order to evoke the sanitary discipline necessary to enforce these methods, and this at once led to the instructions and co-operation of the regimental commander, which makes possible the last principle, Control of sanitary matters by the medical officer. These three tools, in the hands of regimental medical officers in many states, have been changing the product of sanitary efficiency during the last ten or twelve years, in quality, scope and administration. They remain our chief assets at the present time and are absolutely essential in the future development of an efficient sanitary service, not only of regiments, but of brigades and divisions. Fostered by the primary factors of general advance in medical knowledge, lessons learned in actual service, and instruction and example through the regular service, the sanitary service of National Guard when in the field, through the labors of their medical officers, is arriv-

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ing at the point where kitchen wastes are incinerated instead of being kept in garbage cans and buried in pits, where the foodstuffs and the sick in the hospital are screened from insects, where crematories consume camp refuse and latrines are being built fly-proof, and where regimental and company commanders are beginning to see the handwriting on the wall of sanitary efficiency and to co-operate with medical officers, allowing them to direct and control sanitary matters.

The last and latest factor in our evolution, namely, realization of the necessity for co-ordinating our service with that of the Regular Army, not only has begun to perfect the instruction of our commissioned and enlisted sanitary personnel, to increase the equipment of the states in field hospitals and ambulance companies and to gradually change obsolete methods of administration peculiar to individual states, but it strikes the keynote of our future evolution; it emphasizes the fundamental reason for our future existence as a sanitary service, and that is, actual preparedness and positive efficiency, not months *after* the war has come, but *when* it comes.

In considering some of the defects in the administration of the Sanitary Service, a number of the previously stated factors of evolution appear as potential influences in their future remedy. In this connection, it must be remembered that, in many respects and in varying degrees, the National Guard service cannot be made identical with that of the regular service from differences in their social, economic and military environment. Nevertheless, in many states under present conditions, it can be made so similar in its fundamental features, that the transition to the regular form in time of war could be accomplished with a minimum of confusion. The success of this Sanitary Service depends practically on the willingness and ability of its regimental medical officers and those of its sanitary units, provided their progress is encouraged and supplemented by state and departmental authorities. In many states it is becoming more difficult to influence medical men best fitted for the Sanitary Service to become medical officers, because of lack of interest and the expense and sacrifice of time entailed by the service; it is also becoming more difficult to retain experienced medical officers in the service for the additional reason that they become discouraged at their inability to influence the superior heads of their departments or states to correct in brigade or division administration those errors which block the further progress of their individual work and add unnecessary burdens to their

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regimental labor. The Sanitary Service will suffer unless, on the one hand, these military positions be made more attractive and possible by giving medical officers an allowance during the year, based on their routine work of examining recruits, administering vaccine, instructing the regimental personnel, etc., and, on the other hand, by the coercion or removal of inert or inefficient department heads when they obstruct the development of a progressing Sanitary Service in the smaller units. In states where the block to progress lies in the lack of initiative of department or state heads, the Federal Government should exert sufficient influence on them to procure an adjustment of the administration of this department. Where the fault lies with indifferent or inefficient medical officers of the smaller organizations, the standard of admission, the attractiveness of the service and the character of the instruction should be raised by the superior authorities. One of the gravest errors, generally acknowledged in our Sanitary Service, is lack of uniformity. The Federal Government recognizes the need of uniformity. From a recent article written by an officer of the Medical Corps of the U. S. Army, detailed last year to the Division Militia Affairs, we quote the following:

"Considering that the Organized Militia is receiving Federal support solely for the purpose of forming a trained force, subject to the call of the President in time of war, it stands to reason that, in order to meet this requirement, the National Guard should be organized and equipped as nearly like the parent organization as possible. . . . Before training of any kind can be undertaken there must be uniformity in organization and personnel. . . . It may be said with a fair degree of certainty, that, until a uniform organization of the Medical Department in the several states and territories is adopted, little can be expected from them in time of need. . . . It is believed that, if this matter is taken up directly with the adjutants general of the respective states by the medical officers of the respective states, uniform organization could be accomplished."

The last report of the Surgeon General of the U. S. Army recommends the detailing of medical officers of the Regular Army as inspector-instructors of this organized militia (this is being done), and says that states will be obliged to keep sanitary personnel up to meet legal requirements. A maximum number has been prescribed for each regimental battalion, field hospital and ambulance, which should be strictly adhered to.*

* Latest Tables of Organization.

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While the foregoing indicates the intentions of the Federal Government in correcting existing conditions, it also indicates the truth that the medical officers of the various states themselves, by concerted action, may and should demand of their respective heads of department and state, such changes in administration as will allow them to progress in their work along the lines of the regular service.

As the carrying out of these changes ultimately rests with the adjutants and surgeons general of states, and as in some states the collective demands of the medical officers would be unavailing, we suggest that, where such changes are necessary, the Federal Government require of those states an adjustment and arrange for a medical officer of the Regular Army to form with the Surgeon General and at least one representative regimental surgeon for each brigade concerned, a committee to work out these changes as nearly as local conditions will allow to the regular standard—and then, in conjunction with the Adjutant General, insure that they are put into effect. Among a number of defects in the administration of the Sanitary Service capable of partial, if not entire adjustment, the following are of real practical importance:

1. The records and paper work of the Sanitary Service in the National Guard should conform essentially at least to that of the regular service for obvious reasons. While it is impracticable in most states to adopt the entire system of forms and reports, a sufficient number can be selected for their use to make an expansion to the full complement possible in time of combined service with a minimum confusion. A list of regular forms selected by a committee of medical officers and an inspector-instructor from the Medical Corps of the Army is here offered as a suggestion:

1. Daily Sick Report, U. S. Army, blank form No. 339A G. O. One for each Company to be used as a Company sick book.
2. Surgeons Morning Report of Sick. Form M. D. U. S. A. No. 71.
3. Morning Report of Detachment. The U. S. A. form somewhat modified to meet state conditions.
4. Return of the Hospital Corps. Form 47 U. S. A. It was recommended that this form be rendered to the Chief Surgeon within 24 hours of the arrival of the units in camp and should include the entire sanitary personnel of the organization.
5. Consolidated Report of Sick and Wounded. This would cover the entire tour of duty and consists of:
   - A. Consolidated Report Sheet Form 51 M. D.
   - B. Nominal Check List Form 51A M. D.
   - C. Register and Report Cards Form 52 M. D.

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6. Monthly Sanitary Report. Form 50 M. D. was chosen to cover the period of the tour of duty and to accompany the consolidated report of sick and wounded.
7. Special Requisition for Medical Supplies Form 35 M. D.
8. Descriptive and assignment card.
9. Memorandum Receipt for H. C. Equip.

The last two should be based on the regular form, but modified to suit local conditions.

Such a partial adoption of records and forms of the regular service is entirely practical for the states and would make their medical officers familiar with the regular forms.

Another defect is that in some states the chief surgeon of division or the surgeon attached to a brigade is not consulted by the commanding officer in the sanitary matters connected with annual tours of duty, as, for instance, the proposed site of encampment for the various organizations, the method of construction of latrines, etc. Any medical officer can insist that he direct and control sanitary matters for which he is held responsible and company organizations should be urged not only to allow their chief surgeons and surgeons to direct or control sanitary matters of their organization, but should demand that these officers have the knowledge and ability to do so. The system used in some organizations of making general sanitary inspection of troops in the field by detailing a different medical officer each day for this purpose, is to be condemned as being a waste of time and of no great practical benefit. It should be made obligatory for each brigade and division to have an officer, fitted by experience and ability, attached to headquarters as a sanitary inspector, to hold him responsible for the Sanitary Service of the organizations under him, and then give him authority and control over the sanitary situation.

In summer camps for state troops not enough advantage is taken by brigade and division medical officers for arranging a combined plan of field instruction for the sanitary troops, based on the maneuvers of the line troops. This requires the co-operation of company officers of the various organizations, which is often not given unless urgently requested. Such a course of problems for sanitary troops should also be arranged at the beginning of encampments; as too often sanitary troops return from tours of duty in the field without having had much more than the routine regimental sanitary duties.

In this connection, the point is made that proper instruction in the field is not possible unless the regimental sanitary per-

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sonnel consists of four medical officers and sixteen enlisted men, which is the number required by the last Tables of Organization for Peace for the Organized Militia issued by the Division of Militia Affairs.

Again in joint maneuver camps more benefit would accrue if the medical officers of the Regular Army detailed to these camps would more frequently and systematically arrange with the heads of the Medical Department and the company officers of the state oganization, a combined plan of instruction for all the attached sanitary troops, as mentioned above, instead of merely inspecting the different sanitary units in the field. Again, while field hospitals are absolutely necessary for the instructing of the sanitary personnel of the states in bulk, they lose their true value in many respects in field instruction, when no ambulance corps exists to act in conjunction with them.

These are a few of the more important defects in the administration of Sanitary Service among the states, which could be partly or wholly corrected without a general upheaval of state's administration. These defects seriously affect the general progress toward efficiency in the Sanitary Service. The adjustment of them requires initiative, knowledge and efficiency, not only on the part of adjutant and surgeons general, through whom most of these changes must be accomplished, but also on the part of the medical officers of regiments and sanitary units who should be selected for their general fitness for the Sanitary Service and taught the serious meaning of their work.

The National Guard service means one of two things. If it means only a relexation from only the serious business of life, if it means an interesting indulgence of that martial spirit inherited by most men, then the dilatory and unprogressive attitude of many of our states and military heads is excusable, but if the National Guard service has a deeper meaning, if it really holds an essential place in the protection of our country from lawlessness within or menace from without, then it is absolutely *wrong* to exact the sacrifice of time, of means, and of physical and mental strain of medical officers in our National Guard, unless the Federal Government and the various states remove the present obstacles to the full and free development of the Sanitary Service. This is the only reward necessary for sacrifice and unremitting labor of the many enthusiasts throughout the states, who in time of national need would help form the bulwarks against the recurrence of sanitary disasters to state troops or volunteer forces in time of war.

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The Sphere of Activities of Medical Officers Aboard Ship*

By C. M. Oman, Surgeon, U. S. Navy.

THE sphere of activities of medical officers aboard men-o'-war has undergone a great change with the growth and expansion of our navy. With the development of the modern battleship, the substitution of steam for sail power, and the formation of fleets, there has come a great change in the life of the sailor.

Formerly ships and crews were small and they cruised singly. Months were spent at sea or at anchor in out-of-the-way places. The sick quarters were inadequate and surgery was not attempted except in emergency.

The doctor was the scientist of the ship and questions relating to chemistry, botany, zoology, or ethnology were referred to him. He not only attended to the sanitary and hygienic conditions and treated the sick and wounded, but he was the "source of all knowledge" outside of seamanship and that pertaining to fighting the ship. The education of the line officer of former days was confined to his profession and was not as broad as in modern times, while that of the medical officer was more comprehensive and scientific. And then, as there was not much for the doctor to do aboard ship, his time was spent in reading. Hence the usual remark following arguments: "We will leave it to the doctor."

Times have changed and the medical officer has enough to do in his own line, but his activities will depend more or less on himself. There are certain duties he must perform, others he may do if he possesses the skill and energy, and there are still others which he can neglect if he so wills.

A medical officer holds a unique position aboard ship. He is most independent, and although the captain is the "supreme being" aboard, still, if the medical officer recommends anything, it is usually done. If, by his attention to duty, fairness, and his skill with the sick, he gains the confidence of the officers and the crew, there is no officer more respected.

The sailor likes to be treated as a man, not as a child or a school girl. He wants a fair deal and if he doesn't get it he

*Read at the Twenty-third Annual Meeting of the Association.

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will not visit the sick-bay again unless he is compelled to for something which absolutely incapacitates him for duty. It is a well-known fact that the size of the morning sick call varies considerably on different ships just as a number of applicants at a city dispensary varies on different days, depending upon the doctor present on those days.

The medical officer must consider carefully each individual case that presents himself. Looking at the man, taking his temperature, listening to his lungs, palpating the area which is complained of, in fact, considering every complaint, will show the patient that he has received attention and prevent his departure in a dissatisfied and doubtful mood. At times cases cannot be properly diagnosed without having a man take off his clothing or shoes. By proper organization and by systematizing work, sick call can be held in a comparatively short time and still not give the appearance of "hustling the men out."

The cases which require more elaborate examination can be held over until the routine work is disposed of. If the members of the crew once realize that if they are sick they will get attention, but if they are not sick they will be made to do their work, it is surprising how smoothly things run.

The medical officer's attitude toward the enlisted personnel of the hospital corps deserves some comment. If one expects faithful, zealous, and untiring work from them, the medical officer must set the pace. If he is indifferent and slovenly in the performance of his duties they will be the same. The medical officer should show an interest in their work and encourage them by an occasional cheering word. Appreciation calls forth better work. A little thought should be given to the men's hours on duty and they should not be allowed to drift into the sick-bay at all hours for trivial ailments for which they should have reported at the regular sick call. Work should be systematized and the crew should know that when sick call is blown on the bugle it means something, just as mess call means something which they never fail to attend to.

Tact, kindness, force and good judgment are qualifications often lacking in the medical officer, whose duties may be grouped under the following headings:

Professional.
Sanitary.
Educational.

The doctor's duty is primarily treating the sick. In doing this

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many conditions influence him. If he be a surgeon, he is likely to operate aboard ship instead of sending his cases to a hospital or hospital ship. If he is energetic, he will do considerable laboratory work. If he has a little pride he will not transfer all of the cases which need a little care and study. Of course he must use judgment in his selection of cases for retention and his decision will depend upon many conditions, such as the size of the ship, the climate, the probability of departure, the type of case, his ability to treat that particular case, etc. The object of a man-o'-war must be kept in mind, its personnel must be kept in good condition; but the number of transfers should be limited and a little thought should be taken as to the time that the signal shall be given to the flagship, "We have cases for the hospital." Not infrequently a transfer cannot be made because of bad boating, distance from the hospital, or other condition which should have been perfectly plain to the medical officer making the request. In the handling of cases it is often the medical officer who is to blame for an apparent lack of interest in an approval of the work by the Commander-in-Chief. The medical officer must not forget that he is primarily a military surgeon and that military efficiency must be maintained. He must constantly train himself to be self-supporting in times of peace, so that when war does come the conditions which arise will not be different from those which he has been accustomed.

It appears to the writer that too many cases are transferred. By a little more energy and application a great many of the cases which are now sent to hospitals could be treated aboard ship. It is very easy to "pass the buck" and I fear this is done in some cases, as is easily proven by comparing the number of cases transferred from individual ships.

The following may be taken as an example of the variety and scope of surgical work done on a battleship. It is an exact record of the cases attended on board the U. S. S. *Wyoming,* Flagship of the U. S. Atlantic Battleship Fleet, during the six months from October 1, 1913, to April 1, 1914:

OPERATIONS.

	No.	Anæsthetic.
Appendicitis	5	Ether
Hernia, inguinal	8	Ether
Varicocele	2	Ether
Osteotomy (metacarpal)	1	Ether
Adenectomies	3	Ether
Hemorrhoids (clamp and cautery)	2	Ether
Amputations—		
Right arm, below elbow	1	Ether
Index finger	1	Cocaine
Pterygium	5	Cocaine
Circumcisions	7	Cocaine

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Salvarsan and Neosalvarsan (intravenously)	28	
Aspiration, chest	1	Ethyl chloride
Nasal polyps	2	Cocaine

Innumerable abscesses, boils, cellulitis affections, buboes, ingrowing nails, etc., under local anæsthetic.

INJURIES.

Dozens of cases in which cinders, coal-dust, pieces of steel, etc., had become embedded in the cornea.

Hundreds of cases of mild lacerations and cuts which required one or more stitches.
Many cases of sprains and bruises.

FRACTURES.

Compound comminuted of tibia opening angle joint	1
Simple, multiple, of tibia and fibula	1
Metacarpal bones	5
Phalanges	2
Nasal bones	5
Ribs	1

GENITO-URINARY DISEASES.

Syphilis	12
Gonorrhœa	62
Chancroid	45

VACCINATIONS.

Against smallpox	254
Against typhoid	10

These are men who for reasons of unexpected transfers, etc., have not been properly protected at training stations.

This merely shows the work ordinarily classed in the domain of surgery. In addition there were the usual diseases which may affect the human being, the eyes of all the gun-pointers were examined; many teeth were extracted; and many stings, sunburns, etc., which were met in the tropics, were treated.

The laboratory work is no small part of the daily work. The examination of sputum, pus and blood, urine and water analysis is constantly required and properly to carry on the work the microscope must be frequently used.

The medical officer should not neglect his professional reading. Where one is surrounded by non-medical men and where one hears "hits-per-gun-per-minute" morning, noon and night, it is rather easy to neglect medical journals. There is no profession which requires such continuous, strenuous and never-ending labor, as medicine. The important advances keep coming so fast and in such numbers that unless the surgeon is alert and studying every minute, it will be but a short time until he drops into the past tense, so far as medical knowledge is concerned.

SANITARY.

Of course the conditions which tend towards perfect sanitary surroundings come under the duties of the medical officer. He must be diligent in his inspection of all parts of the ship and make immediate recommendations for any actions which he deems necessary. The individual members of the crew must

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be watched for cleanliness, skin affections, physical and mental defects, etc.

Under this heading would be included water analysis, ventilation, clothing, bathing, food supply, liberties, and prevention of various infections.

Life aboard ship is unnatural at the best. So much of the time of the members of the crew is spent below decks that the tan of the old-time sailor is replaced by palor. With our small compartments and artificial light and ventilation, most careful attention must be paid to the cleanliness of the ship and crew.

EDUCATIONAL.

In the matter of education much more can be accomplished than is generally being done.

The medical officer should, by general talks and lectures to the officers and crew, try to acquaint them with the principles of first-aid, the rudiments of anatomy and physiology, the means of acquiring proper hygienic and sanitary surroundings, the various well-known methods of preventing disease, and the various signs and actions which point to sexual perversion.

We must remember that during a battle between ships or if we land our men for a fight, the greater part of the care of the wounded will fall on the man himself or on his comrades. The doctor will be absolutely overwhelmed and the care and thoroughness with which the men have been instructed will determine to a great extent the amount of surgical work and the deaths or recovery of the wounded.

By his constant presence and facilities for conversation the medical officer can do a great deal to help throw off the various superstitions and the mysticism which still surround the practice of medicine even in the eyes of many educated people. It is really surprising how woefully ignorant the general public is in the first principles of anatomy, physiology and disease. This is seen particularly in venereal diseases. If the doctor would take five or ten minutes to each case and give the man a little idea of what he has, the probable outcome and the possible complications, he would not only do away with considerable future suffering but he would get more actual "cures," and he would increase the esteem and confidence of his patients.

The medical officer must be diligent, untiring and painstaking in his work, never forgetting that upon him to a great extent depends the preparedness of officers and crew for battle.

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Ehrlich's Arsenic in the Treatment of Syphilis in the Military Service

By James Robb Church, Major Medical Corps, U. S. Army.

SINCE the introduction of salvarsan much has been contributed by syphilographers as to theory and practice, dosage and administrative methods, and even at this comparatively recent date the early varying opinions seem to have converged in a common channel in regard to its efficiency and proper administration.

What was at first a more or less experimental procedure has by the experience of many operators been standardized to a large degree, certain fixed rules have been established and some myths abolished.

The efficacy of single dosage has been disproved, the necessity for conjunction with mercury established and the early fear of frequent fatalities and the "neuro recédive" have been proved groundless.

Swift and Ellis and others after them have shown that there is a field for it in nervous syphilis, and the use of the term "Para Syphilis" is recognized as unwarranted.

There is no question that we have gone a long way in the adaptation of this form of arsenic to the successful treatment of syphilis, and it seems equally certain that more research and discussion will add to our further precise knowledge and admit of the establishment of other guiding facts and laws.

At the risk of being considered unethical I would suggest that the military practitioner stands to the venereal question on a different level from the doctor of civil life. It seems to me that if we are frank enough to acknowledge utilitarianism as well as altruism, we must admit that our treatment of the sick in the military service has an economic as well as a personal aspect. Laying aside the relations of doctor and patient, we have the duty to the government of maintaining as large a percentage of effectives as possible.

If any treatment of syphilis will conserve to the service a soldier and leave him not a menace to those in contact with him, we have gained so much from the economic point even if the desirable end of the final cure has not been effected. That this can be done by the newer treatment seems reasonably certain,

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and gives us a step forward from the old days of unaided mercury and the iodides without the help of the new remedy and its aids, the Dark Field and the Wassermann.

I have seen no figures quoted, but if the proportion of apparently "Wassermann fast" cases is as large with other observers as it has been in the series under my care for the past three years, the percentage of "cures," considered from both clinical and laboratory findings, must be discouragingly small The helpful fact in my own series has been that these cases, both acute and chronic, while still syphilitic from the laboratory verdict,—apparently "Wassermann fast,"—show no physical infirmity and a clinical clearance of the symptoms which first necessitated treatment.

Perhaps I have used a good many words to state my opinion in the matter, which summed up is: That the prompt abolition of a disability due to syphilis, the sterilization of the case and the maintenance of the man in good health, even during the tenure of one enlistment period, is an economic gain to the service even if he still has a plus Wassermann of fluctuating value. A consistent "–" is of course the desired end result, but until that can be uniformly produced our half loaf is certainly better than no bread at all.

In no field is it harder to formulate *fixed* laws of procedure than in medical practice; perhaps nowhere harder in medical practice than in a condition so varied by symptoms and the personal equation as one of the stages of syphilitic disease, and yet to make intelligent progress one must have a point of departure, some base from which to build.

In the beginning of treatment with "606," early in 1911, I assumed, in accordance with Ehrlich's expressed hope, that a single dose would be sufficient to fulfil his dream of a "Therapia sterilans magna."

My own and contemporary experience rapidly showed this to be a mistake, and in reply to the expressed opinion that mercury must not be discarded, our treatment here standardized itself into the following: Six-tenths salvarsan by the vein, repeat in one week, then ten, twelve or fourteen intramuscular injections of mercury at weekly intervals, and concluding with two more doses of salvarsan of six-tenths each, with an interval of a week or ten days between them.

I do not intend to imply that every case in every stage was treated in this way, but I adopted it as a "standard" to be departed from as the exigency of the condition might demand.

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Up to the present time I have found it satisfactory so far as clinical results go, and as I stated previously these have been better under my observation than the laboratory results.

At first calomel cream was used intramuscularly, but I discarded it on account of the pain it caused and the not infrequent gluteal abscesses which resulted even after most careful asepsis. Gray oil, made up after the formula given in Keogh's most excellent "Manual of Venereal Diseases," was substituted with entirely satisfactory results and abolition of pain and abscess.

The salicylate and other preparations have not been used for no particular reason save that the gray oil proved entirely satisfactory. In two cases of intense iritis, where rapid action was considered essential, the salvarsan was given at shorter intervals in smaller dosage and daily injections of bichloride substituted for the gray oil. On betterment of the ocular condition these cases were switched back to the "standard" treatment and made an uneventful clinical recovery.

In other cases more than four doses of salvarsan of the "standard" treatment have been given; at first, prior to the course of mercury, but later concurrently on the now accepted belief that the arsenic is better borne if supported by the other drugs.

In the so-called "Wassermann fast" cases I have not been able to demonstrate that intensive treatment thoroughly carried out and the continued administration of "606" will abolish the plus findings. As a case in point, Private P—, C. A. C., showed a chancre on lower side of prepuce on May 29, 1911, a double plus reaction on June 9, 1911. His treatment was as follows:

June 11 and November 21, 1911, .6 gms., salvarsan intramuscularly. February 24, 1912, .6 gms. salvarsan, vein. April 22 to May 21, 1912, inunction unguentum hydrargyri .2 gms., daily. October 26, 1912, salvarsan .6 gms., vein. November 26, 1912, to January 23, 1913, calomel cream, to alternate buttocks at weekly intervals. January 25 to February 5, 1913, neosalvarsan .6 gms., by vein.

His reactions in 1911 were: June double plus, August plus minus, October minus, November double plus; in 1912, February plus minus, April plus minus, August minus, September double plus; in 1913, March plus minus, April plus minus, May plus minus, July plus minus, August minus, October minus, November plus minus; in 1914, January plus, March minus, April plus minus, June minus, August minus and September minus.

His clinical improvement was steady and satisfactory. He has since been married and his wife gave birth to an apparently

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healthy child at the end of her first pregnancy. Without the telltale index of the Wassermann this man would probably have passed to the list of "cured" cases.

Under the census of the laboratory he must still stand as a "latent" case and may go on so far as I can see to the end of his career with a clinically clear and serologically blotted record. What is to be the conclusion in this type of case? My own inference is that no case, once definitely decided as syphilitic, can ever be released as cured, and that we must concede a degree of resistance at least to the types of this disease which bear all the earmarks of a cure save the finer findings of the laboratory.

Sergeant D—, C. A. C., was admitted to hospital November 1, 1909, with "syphilis, secondary, manifestations: mucous patches on soft palate and general glandular enlargement." He was treated with mercury and the iodides and returned to duty November 22, 1909.

Early in 1911 he had an ulcer on the scrotum and sore throat, and on May 22, after a positive reaction, was again admitted to hospital and given .6 gms. salvarsan intramuscularly and returned to duty May 25, 1911. On January 4, 1912, after a second positive reaction, he was again admitted to the hospital and given a second administration of .6 gms. salvarsan and was returned to duty January 6, 1912. Since that date he has had no treatment and his reactions have been as follows: June, August, September, 1911, negative; March and November, 1912, negative; January and November, 1913, negative; August, 1914, negative.

Sergeant M—, G. A. C., admitted to hospital September 22, 1911, with a chancre on penis and a plus reaction, and was given .6 gms. salvarsan intramuscularly and returned to duty October 6, 1911.

His reaction on October, 1911, was plus, and November, 1911, plus minus. On December 1, 1911, he was again admitted to the hospital and given .6 gms. salvarsan by vein and returned to duty December 13, 1911. Since that time he has had no treatment and his reactions have been as follows: May, June, August and November, 1912, negative; January, March, April, May and November, 1913, negative; September and October, 1914, negative.

It must of course be conceded that the reaction in neither of them is positively diagnostic of syphilis, but taken in conjunction with the macroscopic lesions the evidence seems pretty conclusive.

Possibly there may be some strains of the Treponema Pallidum which are less resistant to the antagonistic action of arsenic

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and mercury than others, but this is at best only an hypothesis and still subject to demonstration. That such might be the case suggests itself from the ready response of some cases to treatment, while others show a fixed and obstinate resistance to the same measures. Surely in a series of cases such as we encounter in the military service the personal equation cannot be held responsible for this divergence in results.

By and large the men are much of the same type, about of an age and presumably, after passing the requirements of the recruiting officer on an equal plane of sound physical health.

A difference in resistance might be accounted for in the individual by a difference of resistance in the organism itself. We recognize grades of virulence in the Klebs Lœffler bacillus and the manifestations of this in the clinical symptoms of the resulting diphtheria. Is it possible that we may grade our syphilitic lesions accordingly and so account for our "Wassermann fast" cases—those which show a persistent "plus" finding of varied intensity after prolonged and thorough treatment?

With two "cured" cases, then, out of the 101 treated, I have, from the absolute medical side, done little or nothing to improve the condition as existent in this post; that is, speaking from the standpoint of laboratory findings. From the economic standpoint, I have put back and maintained in the service men who, when I first took them under treatment, were not only not fit for their duties, but many a menace to those who came into personal contact with them. That they have been rendered non-infectious, fit for all duty, and will probably remain so, seems to justify the expenditure for their healing.

I hesitate to go into details of the manner of administration, for this has been thrashed out by many men who have had more experience in the matter than I.

As to "606" and "914," I have found little or no difference in the two. I am aware that "606" bears the stamp of official approval, but I have seen as prompt cessation of symptoms from the administration of the latter as from the former, and I have no knowledge that the results are not as lasting.

From the standpoint of ease of preparation all evidence is certainly in favor of the latter drug. Whichever one is used, it seems to me certain that in the beginning we used it in an unnecessary dilution; 150 c.c. of water was the recognized vehicle at first for .6 gms. of arsenic; latterly I have given it, and still do as a routine procedure, with not more than 50 c.c. of water as a solvent. This applies to neo-salvarsan. I have not found

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that there was any more reaction from this concentration than from the larger dilution; in point of fact, I think there has been less, and it seems to me natural when we consider the diaphoretic and diuretic action of even normal salt intravenously.

I have stuck to the gravity method in administration because that technique has been worked out here, and it has seemed to me poor policy to turn to the one man administration by syringe when nothing was to be gained by it save a lessening in time which had no value.

Under the present technique the administration of a .6 gms. dosage, or its equivalent in neo-salvarsan, means the occupation of about eight minutes in a normal case, i. e., where the veins are sufficiently prominent to admit of easy administration.

We never use here water that has been distilled more than twelve hours; the still is started allowing the shortest time for preparation and any water left is discarded and another distilling made for a subsequent administration. This may be an unnecessary refinement, but the fact that we have had no severe reactions tends to confirm me in this belief.

Aside from muscular soreness from the early intramuscular administrations we have no after effects which are worthy of mention. In one case a rash appeared almost exactly resembling a case of measles, but this faded within twelve hours and a precedent was found for the condition in Keogh's Manual already referred to.

In the cases treated here since January, 1911, almost every stage and type of syphilis has been manifest, primary sores of the penis and several oral chancres, tonsillar particularly, early and late secondary, one rupial case, a number of latent degree and one involving the central nervous system. I append the history of the latter case, not only because of its clinical interest, but from the fact that it is, so far as I know, the first case treated in the Army according to the method of Swift & Ellis.

Sergeant W. L—, C. A. C. Diagnosis: Tabes Dorsalis.

Date of diagnosis: September 15, 1913.

Date of infection, about 1901.

Symptoms: Romberg. Argyll-Robertson. Abolition of deep reflexes. Lightning pains. Wassermann September 20, 1913.

His first intraspinous injection was given January 26, 1914. Prior to that time he received four intravenous injections of .9 gms. neo-salvarsan, one of .6 gms., one of .3 gms., and fifteen intramuscular injections of gray oil. His symptoms improved somewhat under the intravenous salvarsan and the mercury, but

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it was decided to extend the treatment by the Swift-Ellis method.

Through the kindness of Dr. Swift I received monographs detailing his method of procedure, and on January 26th we gave him 30 c.c. of 40 per cent autoserosalvarsan by lumbar puncture.

The only reaction was sharp increase in lightning pains, controlled by aspirin and morphine, and these disappeared within twenty-four hours. From then on to his discharge in June, 1914, he received nine more injections in the spine, all, with two exceptions, of 40 per cent strength.

One was given of 60 per cent and one of 50 per cent, but the reaction was much sharper and attended by a rise of temperature and we reverted to the 40 per cent again.

Improvement was prompt and marked manifested under the subarachnoid administration, both as to clinical symptoms and laboratory findings. The Romberg lessened tremendously, pupils became reactive again, lightning pains which had been very constant disappeared save as elicited by an intraspinous injection.

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He gained in weight, his gait improved noticeably, and he lost to a marked degree his general nervousness and despondency. His laboratory findings also showed betterment except for his blood Wassermann. This always retained a high potentiality and I suppose he must be classed as "Wassermann fast."

His Wassermann findings were returned from the Army Medical School, the cell count made here as well as the globulin reaction which was estimated by the butyric acid method. The cell count was probably not absolutely accurate, as it was not practicable to make it on the immediate withdrawal of the spinal fluid, ten or fifteen minutes elapsing.

This man was discharged in June but not re-enlisted. I heard from him a month after his discharge and he stated that he had continued to gain and had picked up fourteen pounds in weight.

Later he reported to Captain H. J. Nichols in Washington, to whom I had given him a letter, and I believe he was admitted to the Soldiers' Home there for observation and possible further treatment.

The technique followed was as laid down by Swift and Ellis.

The manometer was used in determining the pressure of the fluid in the spinal canal, and the apparatus used the one furnished by Tieman, together with a 20 c.c. glass syringe barrel which was used for a container for the administration by gravity.

We had no complications in any of the ten injections, and the technique, while requiring care, is not unduly complex.

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In each administration 30 c.c. of spinal fluid was withdrawn from the canal irrespective of the initial manometric reading.

It does not seem proper to form a conclusion from one case, but this man certainly improved.

The subjoined table gives more detailed data of the case.

Date. Treatment.	Reaction. Cell Count.	Glob.	Serum.	Spinal fluid.	Remarks.
Jan. 25, '14. .3 Neo-salv. Vein. Jan. 26, '14. 30 cc. 40% Serum.	20	++	++	4 cc. +	Neo-salvarsan .9 gms., by vein, Sept. 9-23, Oct. 5-18, .6 gms. Dec. 30, 1913, and .3 gms. Jan. 15, 1914.
Feb. 7, '14. .3 Neo-salv. Vein. Feb. 8, '14. 30 cc. 40% Serum.	12	+		4 cc. +—	
Feb. 21, '14. .3 Neo-salv. Vein. Feb. 22, '14. 30 cc. 40% Serum.	9	+	++	4 cc. +—	Had 15 intramuscular injections of gray oil (.10 of mercury) from Sept, 21, 1913, to Jan. 4, 1914.
Mar. 7, '14. .3 Neo-salv. Vein. Mar. 8, '14. 30 cc. 60% Serum.	6	+		5 cc. +	
Mar. 21, '14. .3 Neo-salv. Vein. Mar. 22, '14. 30 cc. 50% Serum.	7	+		5 cc. +	During April and May he was on graduated doses of Hydrarg. Protiodide.
Apr. 17, '14. .3 Neo-salv. Vein. Apr. 18, '14. 30 cc. 40% Serum.	4	+—		5 cc. + 3 cc. — 1 cc. —	Spinal injections given through iodine. Anæsthetic, sterilized cocaine.
May 1, '14. .3 Neo-salv. Vein. May 2, '14. 30 cc. 40% Serum.	5	+—	++	5 cc. ++ 3 cc. ++ 1 cc. —	
May 16, '14. .3 Neo-salv. Vein. May 17, '14. 30 cc. 40% Serum.	4	—		5 cc. ++ 3 cc. — 1 cc. —	
May 30, '14. .3 Neo-salv. Vein. June 1, '14. 30 cc. 40% Serum.	4	—		5 cc. — 3 cc. —	
June 13, '14. .3 Neo-salv. Vein. June 14, '14. 30 cc. 40% Serum.	4	—	++	5 cc. — 3 cc. —	

Personally I have gained much from the more exact knowledge which we now have in regard to this disease. Perhaps a case not to my credit may be a case in point.

In 1911, Mechanic S—, C. A. C., was recommended for discharge for chronic rheumatism. At Fort Slocum he was picked up as a latent syphilitic, and with treatment all along that line he took up his bed and walked and is now an entirely useful soldier in this command.

On the other hand, and to be "accounted to me for righteousness," as a distinguished ex-president puts it, is the case of Pvt. M—, also of this garrison, who, when he came under my care for acute alcoholism, showed a chronic psoriasis as an intercurrent condition. A specific history, dating back many years, was elicited, and the administration of the "standard" treatment

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ablated his patches and left him a clean soldier, physically if not morally. Perhaps it is fair to state that two cases of non-specific psoriasis showed no improvement under "606," although they gave, as these cases do, a plus reaction.

The only other cases treated with "606," aside from straight luetic cases, was one of Vincent's angina, and it made a prompt and satisfactory recovery. As this is a disease due to a spirochete perhaps it merits no more consideration than the mention that it was apparently promptly cured by the use of organic arsenic.

Since January, 1911, I have treated at this post 101 cases of syphilis with Ehrlich's arsenic, "606" and "914," and I have given 425 injections of the same. The earlier were intramuscular, two or three in a dissected out vein, but the majority by the now common method of puncture. I have had no fatalities, and I think I can say no reactions worthy of record. Pain from the intramuscular, yes, and not infrequently an alvine diarrhea from the intravenous.

Of the cases treated forty were primary sores, forty-nine secondary (early and late), seven latent, and of special type there have been five, including one tabes, one with dementia præcox, one rupial, one possibly paretic, one psoriasis.

The variety has been sufficient to prove out pretty thoroughly the value of salvarsan as a factor in treatment. The Dark Field has been used in diagnosis of primary sores, and where the Wassermann has been negative with the clinical evidence positive, treatment has been instituted on the ground that the early lesions commonly give a negative or weakly plus finding.

Personally I consider the result marvelous. From the standpoint of the "economist" it has enabled me to put men back for duty, non-infectious and safe in at least one-third of the time which would have been needed under mercury alone. The happiest results in my cases have been in the primary lesions and in the mouth cases which did not involve the tongue. Tonsillar and faucial lesions have disappeared like magic under treatment, but the men suffering from glossitis have been slower to respond.

Judging from the diversity of cases which have been treated here it certainly seems to me that the expenditure for the treatment has been worth while; certainly so far as the well being of the individual is concerned, and perhaps no less so from the standpoint of the increased efficiency to the government.

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The stumbling block in the progress of treatment has been the right interpretation of the plus minus reaction. With the lack of clinical symptoms it seems hard to ascribe to this low degree of reaction the exact and positive value which it should have. That others recognize this difficulty is evidenced by the following quoted from a letter from Major F. F. Russell: "The plus minus reactions have given us the most trouble in interpretation because they may occur in the uninfected. They may indicate a disappearing reaction under treatment or a returning reaction after suspension of treatment. In these cases another specimen might be entirely negative."

Naturally we cannot discredit a procedure so exact as the Wassermann, but until we understand better the significance of these low reactions I believe they must remain in many cases to us as doubtful evidence, the symbol of a border land condition.

As to a "CURE" resulting from the use of salvarsan, I have from the cases here only the two already quoted, and one other, who so far as I could determine contracted a second infection. This man first had a tonsillar chancre from which the treponema pallidum was found in the dark field. His symptoms disappeared under intensive treatment, but before he had shown a minus reaction for the required year he reported again with a typical chancre of the penis and a double plus reaction. Treponema could not be isolated from the second sore, but it had been thoroughly cauterized before I saw it.

A second course of treatment was given him, and while it cannot be definitely proven, I am reasonably sure that the second sore was a primary one. This would predicate that he was not protected at the time, and would seem at least to indicate that salvarsan and mercury cured him.

In regard to the methods of administration there can be little variance of opinion in regard to salvarsan and neosalvarsan. Every one has come to the intravenous operation by puncture. While there are slight variations in technique in accordance with the views of different surgeons, it is essentially the same. In the rare cases where the vein is so small and indistinct as to make the procedure impracticable, I believe we should resort to intramuscular injection rather than the, to my mind, crude operation of dissecting out the vein. A scar or scars over the bend of the elbow have too much significance now to be carelessly inflicted.

As to mercury, it seems to me that the intramuscular injection of one of the insoluble preparations is the best for our use.

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Inunction is dirty, tedious and telltale, and even those with the best of intentions will forget from time to time to take the protoiodide prescribed. When the salicylate, gray oil or kindred preparations are injected the surgeon is sure his patient has received his quota of the drug and the man is relieved of the thrice daily tax on his memory.

It may be heresy, but it seems to me that the advent of salvarsan has left less field for the large and nauseous doses of potassium iodide which were formerly considered desirable in all schemes of treatment and really essential in ocular involvement or invasion of the nervous system. It seems certain that both these conditions are better met by salvarsan and mercury and that the omission of K I has had little effect in end results.

Good hygiene, right living and possibly the use of some one of the recognized preparations of iron, may help us in those cases where the ravages of the disease are evidenced by a general lowering of the normal physical tone. Even in these cases, however, it has been my experience that the proper administration of salvarsan and mercury will do more for a rapid upbuilding of general health than could be accomplished by other agents. In 1911 a man with a rupial eruption, a double plus reaction and general glandular enlargement was put on intensive treatment. At this time he weighed 127 pounds. Some ten weeks later his symptoms had disappeared and he weighed 167 pounds.

I believe that the advent of salvarsan, the Wassermann reaction and the possibility of demonstrating the treponema has made us all more careful and conscientious in our treatment of lues. In the old days when the diagnosis was based entirely on the clinical picture it was customary to wait for secondary manifestations before starting treatment, and then treatment was a routine matter for the most part, gropingly administered and dependent on what showed on the body for its duration or continuance. The remote effects of syphilis were not clearly recognized, and some of the cases which are now promptly classified and as promptly benefitted, "worried along" to their final end or until an intercurrent malady forestalled the syphilis. I think we are all more suspicious of obscure symptoms and unexplained conditions than we were before we had the dependence of the laboratory and the microscope, and that we do more justice to our patients and ourselves than was possible before the fog which obscured our professional vision was blown away by the wind of modern scientific achievement.

That more will be accomplished as the result of further re-

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search and experiment is entirely possible, and the period may not be far distant when syphilitic disease in its many forms and infinite variety will be amenable to a clear and definite treatment.

I am under obligations to Captain A. P. Clark and First Lieut. B. B. Warriner, M. C., who were my assistants at this post, for advice and assistance in carrying out the treatment of the cases which have come under observation at this station since February, 1911.

Fort Williams, Maine, November 3, 1914.

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Reprints and Translations

War Surgery in the Base Hospitals and the Evacuation of the Wounded*

By M. Temoin.

FOR more than two months I have had to care for 800 wounded in the temporary hospital of the Lycée, in the Hotel de Dieu, and in my clinic. The variety of wounds that I have had to treat, the results already obtained, the complications that I have been able to observe as the sequelæ of the wounds by firearms, permit forming a judgment as to what we can accomplish by our actual means of surgical therapeutics and offer valuable teaching concerning sanitary organizations.

The wounds we have had to treat have been produced by balls from shells, by shrapnel, by rifle balls or by bursting shells.

The round shrapnel balls, less resistant and not well covered, are in general less penetrating. If they strike a rounded surface they make a subcutaneous wound of short course and whose entrance and exit orifices vary little in size and the wound is slight. If, on the other hand, they penetrate the tissues, they often stop a short distance from the surface, and as they are not aseptic they rapidly form after four or five days a little apyretic abscess, which reveals their presence and enables the surgeon by a simple incision easily to extract them. These balls can produce fractures, but fractures are more often caused by the conical rifle ball than by pieces of shell.

Rifle balls, which have considerable penetrating force, are not to be dreaded if they touch only soft parts. Their entrance wound is exceedingly small, the exit wound much larger with a slight reddish discharge and that is all. A simple dessing with pulverized tincture of iodine suffices, and in a few days the wounds are convalescent. If the ball has not passed out and

* Translation of an article in *Bulletin de l'Académie de Médicine*, October 27, 1914, for The Military Surgeon. Doctor Temoin is of Brouges and is national correspondent for the Académie. Translated by F. A. Shirley.

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can follow a very deep and extended course and remain in the tissues without showing any signs of its presence, as it is most frequently aseptic, it will not form an abscess, and it is best not to probe for it, for by so doing there is the risk of provoking, without any result, suppuration in a wound which, but for this exploration, would have cicatrized in a few days. Moreover, this ball will not cause any inconvenience and it may be left until pain shall indicate the region of its location more or less remote from the entrance orifice, and then the radioscope or radiography will indicate precisely its locality and will enable the surgeon to extract it by an asceptic operation without danger.

When rifle balls, instead of traversing soft parts, penetrate cavities, their action is often very benign. In ten of our wounded the chest had been traversed, sometimes toward the base of the lung, sometimes toward the top, and all healed very quickly. These patients suffered for a few days with more or less serious expectorations of blood, but with no rise in temperature. Then these symptoms disappeared, the difficulty in inspiration gradually lessened, and at the end of a month they were able to leave the hospital as convalescents needing no further treatment except a period of rest.

If, however, the difficulty in respiration persists, if the dulness increases and the temperature rises, then it is necessary to intervene and to intervene quickly. It is then a question of a bloody effusion, often considerable, which will almost surely infect, and which can bring in its train septicemic consequences analogous to those of putrid pleurisies. Removal of the pus with thorough drainage, followed by washings to remove the putrified coagulations, brings a rapid cure.

Three of my wounded had these discharges in great quantity and very fetid, but all three are convalescent.

Grave wounds of the abdomen by balls or bursting shell will not often be found in base hospitals. They require quick enterocution and consequently are treated by surgeons operating at only a short distance from the firing line. But even in the lung a ball can traverse the abdomen without causing the injury one would fear. A general who was brought to me had the abdomen traversed thus obliquely below the umbilicus without any wound being produced, and ten days after his arrival he departed convalescent.

Much more serious in general are wounds from bursting shells. They are more serious, first, because the wounded is the victim of multiple wounds; second, because the bursting of the shell

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produced at a short distance from the victim gives to the fragments a considerable penetrating force; and lastly, because the volume of the fragments may be great and so produce in the region that they touch wounds extremely extended. These wounds, which either have much more lacerated tissues, or much larger open surfaces, for which the individual dressing is insufficient, are those the most often infected and which most frequently give sceptic complications. It is in consequence of these enormous infected wounds that we see inflamed tissues or gaseous gangrenes, and these are the wounds which most expose the wounded to that most terrible of complications, tetanus.

When the wounded has been struck by the round shrapnel ball, by the conical rifle ball or by a piece of bursting shell, making a wound of the limbs, the most frequent result is a comminuted fracture, complicated always with more or less extended disorders of the soft parts, and in many cases the wound is so serious that the thought of amputation is imposed.

But how necessary it is to be chary of surgical mutilations cannot be repeated too often. In spite of the disorders produced; in spite of the lamentable appearance of torn tissues; in spite of bones fractured in several places and sticking out of wounds; in spite of even the supplications of the wounded, who, in order to end their sufferings, desire an amputation. conservative surgery, thanks to the means which we now have at our disposal, gives results so satisfactory that it is our duty to refuse to amputate a limb on the arrival of the wounded. Assuredly some wounded will occasionally be the victims of this temporization, but almost the total number will draw from it so much profit that hesitation is not permissible, and we ought to sacrifice a limb only when local conditions show conclusively the absolute impossibility of its preservation, or if the accidents of general septicemia render necessary the removal of the seat of infection.

In this last case it is necessary to operate as quickly as possible, and as M. Rochard has said to the Society of Surgery, only the experience of the surgeon can solve the question. But for this very reason, it is necessary that the chief surgeon be *a surgeon.*

Almost all fractures, no matter how complicated, will make perfect reunion. For this two things are necessary: To disinfect the wounds and to immobilize the limb as quickly as possible. This immediate and complete immobilization seems to me indispensable for a rapid cure. By it the fragments of bone

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being put back in place and not being able to divide, will more quickly profit by each dressing in the opening of the wound. Suppuration will be much more quickly dried up, the suffering of the patient will be lessened and will not be renewed at each dressing and the fractures will most frequently unite.

I thus treated 37 complicated fractures of the humerus, 35 complicated fractures of the legs, 27 complicated fractures of the femur. I have lost only one patient, who should have been operated and who had tetanus.

Fractures of the arms or legs are immediately on arrival of the wounded put in a plaster cast, care being taken to leave sufficient openings for the regular dressing of the wounds, often very extended around the wound of exit, or when the fracture has been made by a bursting shell.

In fractures of the femur the best apparatus seems to me to be that of Tollaux, which causes as little discomfort as possible and which leaves free all the open region, and which permits dressing the wound without much displacement of the member and consequently with less suffering for the patient.

That which is especially important in fractures is to respect the wounds, not to examine them; above all, in the beginning not to introduce into the place of fracture the fingers or instruments in order to discover the amount of injury or to seek out foreign bodies.

Simple flat dressings with no effort to unite the lips of the wound ought to constitute all the surgical work for the first few days.

The most of my wounded are already cured or in the way of being cured. If certain fractures do not unite, there will always be time, after cicatrization of the soft parts, when all chances of infection have disappeared, to correct the false joint by a regulation operation.

Fractures of the skull with the forcing in of bone are also frequent. Intervention should in these cases be as quick as possible before the infection, often already begun, of the wound by the hair, reaches the deep parts, and determines meningitis or phlebitis of the sinus. Made at an early period trepanations give excellent results. Four times I have had to operate on wounded whose condition was very grave (demi-coma, mental confusion, aphasia, hemiplegia) and all four have been perfectly cured, even after a notable loss of cerebral substance. It seems to me that these fractures produced by projectiles cure much more rapidly after trepanation and an ablation of the bony splin-

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ters than the fractures that we see in ordinary current practice. The latter are almost always the result of a fall on the head and the wounds more suffused and farther from the seat of fracture with the greatest shock to the entire skull give the surgeon but rarely operative satisfaction.

If the wounds of war are serious in their immediate consequences, they are still more serious in their complications, some of which form for the surgeon an almost entirely new chapter of pathological surgical practice.

Some wounds are totally infected. Phlegmon, gaseous gangrene, acute septicemia appear, and with this peculiarity: They develop so rapidly that all intervention is futile.

Other wounds—and it is on these I wish to lay emphasis—result from the wounds of vessels and provoke secondary hemorrhages of extreme gravity, without speaking of arterial aneurisms or arterio-venous aneurisms, of which I have already operated six cases with five cures. The one that I lost was operated at the military hospital and not in my service.

These hemorrhages are produced in two ways: Sometimes it is the customary secondary hemorrhage of wounds, characterized by a jet of blood deluging the dressing and the bed; this hemorrhage may be stopped immediately by the ligature of the vessel or by forceps left in the wound, or by making a ligature of the principal artery at some distance from the wound.

Sometimes the hemorrhage is produced with entirely different symptoms which merit particular attention. The thing takes place in the following manner: The patient is carried to the hospital. He has received in the arm, the femur, the leg or the neck a ball or a small fragment of shell which has penertated—and more frequently has not passed out—and which may or may not have caused a fracture. The wound is one which ought to heal and the first few days seem in all respects to confirm this prognosis. But after four, five, eight or ten days, or even more, the patient suffers in his wounded limb, his temperature rises, the skin becomes taut, the exasperating pain becomes intolerable and the powerlessness of the member complete. On examination the first thought is of the formation of a deep abscess that may be evacuated by a simple incision. But, the incision made, in place of free pus there is a violent bubbling which escapes from the wound, a particularly fetid bubbling, followed at last by putrefied clots. The abundance of this discharge is considerable. It has loosened all the soft parts, distended to the extreme the member in which it is developed. If not opened it will produce

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gangrene of the member by the compression that it exercises, a gangrene exceedingly septic against which amputation will not always triumph.

If it is opened there will be immediate relief for the patient, but in the same day or in the following night a hemorrhage will follow,—if this does not take place at the moment of opening,—a terrible hemorrhage which can kill the patient. Indeed I have known a certain number of deaths in these conditions.

The surgeon ought then, in view of this form of discharge, when he sees a limb uniformly distended, with intolerable pain, with powerlessness of the extremities (a thing which never happens with an abscess or deep phlegmon), to think that it is a case of veritable diffused aneurism, that an important vessel is flooding the tissues and that intervention is urgent. The only course of action in such a case is to make the preventive hæmostasis above the lesion, to open the pocket and clean it, no matter how large it may be, to lay bare the vessel and to tie it above and below its wound. If the vessel does not show when the blood is stopped, the surgeon has only to remove the hæmostasis and see the vessel bleed.

Eighteen times I have had to intervene under these conditions. Except for the loss of my first patient, who had gangrene of the entire limb immediately after hemorrhage, all others are cured or on the road to convalescence. In these interventions I have had to tie the primary carotid artery, the external carotid; three times the axillary and the humeral in the upper quarter; three times I have made ligatures of the humeral at the bend of the elbow; three times of the femoral at the bend of the groin; one of the femoral at the Hunter canal; two of the popliteal, and once the anterior tibial.

The war surgery which is practiced in the base hospitals or in the temporary hospitals at the rear is of extreme variety, and the surgeon in charge will often find himself in difficult dilemma and ought to be prepared for all kinds of operations: surgery of complicated fractures, thoracic surgery, surgery of blood vessels, cranial surgery. On his power and determination will depend the fate of the wounded confided to him.

Happily the results obtained are extremely encouraging. The mortality of our cases would be almost nil without the complications—elsewhere few in number—of septicemia and especially of tetanus.

But in order that these favorable results may be obtained, it is of the utmost importance that the sanitary formations pos-

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sess, both in personnel and in installation, all that is indispensable for good surgery. It is also of the highest importance that the wounded be sent after a serious wound only to the centers where all surgical care can be given them. For, as M. Rochard says, there is no special surgery for wounds of war; there is no war surgery—there is only one surgery.

Also the selection of the wounded is of capital importance. A wounded man whose condition requires the most delicate care ought not to be evacuated or placed in a central hospital where he will not find the succor necessary to his case. This selection of wounded need not present grave difficulties. It can be made in the sanitary train and each wounded man can carry pinned to his clothing a card of different and understood color according to the gravity of his condition. This would permit rapid selection at the center where he is deposited, and in the station of this center, rapid selection by the hospital to which he ought to go.

In this manner numerous mutilations might be avoided and many deaths prevented, that, notwithstanding all precautions, the physicians who have not the practical experience of surgery, or who have not the equipment or installation necessary, cannot prevent.

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Editorial

PREPAREDNESS

Apropos of this topic which is dominating the Service papers just at present and which we hope may eventually rouse the Nation to a realizing sense of its military unpreparedness, a poem appeared in the New York Sunday *Tribune* of December 13. This poem is so much to the point that we venture to reproduce it:

PREPAREDNESS

Because you own an ulster that will keep you warm and dry,
Is that an indication you must wear it in July?
And if you do not wear it 'til the winter or the fall,
Is that a real good reason for not having one at all?
Because I buy my fuel when it's cheapest—say, in May—
Am I obliged to start my furnace going night and day?
And if I do not start it in the balmy month July,
Is that a real good reason for not buying my supply?

Does Mr. Woodrow Wilson in his inner conscience think
He must sign obnoxious measures just because he has the ink?
And if he will not sign them, does he throw away his pen
Or keep it and employ it, like all prudent, thoughtful men?

We hear about our navy and our army and our guns,
We know about the courage of America's best sons;
The very finest cannon is a thing at which to scoff,
If a gunner pulls the trigger and the darn thing can't go off.

New York, December 12, 1914. C. R. P.

And this reminds us that in the far-away days following the Crimean War a song was in vogue in the public schools of England. This song was then pertinent and appears to us now as pertinent to the subject matter in hand. The song, a portion of which is quoted, runs something in this wise:

I'll sing you of a sailor brave,
And then the fame you will extol
Of the Amphitrite's Captain bold
Who once blew up Sebastopol—
That is, he would have blown it up,—

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Don't miscontrue my ditty,
If the gun would only have gone off,
But it didn't,—more's the pity,
With a bang, bang, bang, etc.

My song is sung, my tale is told,
And this advice I'll tender;
If ever you should load a gun
To make your foe surrender,
The powder first you should put in,
The ball then ram down after,
For if you don't, you'll kill your foe,
Not with the ball, but laughter.
With a bang, bang, bang, etc.

LOOK TO YOUR INSURANCE.

Maj. Pliny Penn Lester of the Medical Corps of the National Guard of Colorado, an active member of this Association, while on duty and in the act of rendering assistance to a wounded soldier of his command during the coal miners' riots near Walsenburg, Colo., was shot and killed by a striker. Maj. Lester held an accident insurance policy, but we understand that the company has refused to pay, or at any rate has failed to pay, the death claim, and that the beneficiary has instituted or is about to institute, legal action for the payment of the claim. We do not know the terms or limitations of the contract of insurance carried by Major Lester. Few holders of insurance policies even look at the terms of the contracts under which they are insured. The company may therefore be well within its legal rights in deferring or declining to pay this claim. But the ethical question is interesting. Should an insurance company accepting as a risk a physician known to be a medical officer of the Organized Militia discriminate against this risk when the insured meets his death in the line of duty and in protecting or saving the lives and property of the commonwealth? If a company thus takes advantage of a legal technicality to avoid payment of what appears to us to be a just and valid claim, it behooves us as medical officers to investigate and closely to scrutinize the terms of the policies under which we suppose ourselves to be protected, that our beneficiaries may not suffer at the hands of a company which has shown such unmistakable lack of patriotism and so lamentable a want of business acumen.

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Current Literature

FRANCE.

Bulletin de l'Académie de Médecine.

October 27, 1914.

1 Infant Hygiene. Ch. Achard.
2 *Prevention of Cold Hands and Feet. Fernet.
3 *War Surgery in Base Hospitals and the Evacuation of the Wounded. Temoin.
4 *Wounds by Ricochetting Balls. Rochard.
5 *Intravenous Injections of Camphorated Serum.
6 *Intrarachidian Injection of Antitetanic Serum Made with the Patient Placed in a Bulbous Incline. Georges d'Hôtel.

2. **Prevention of Cold Hands and Feet, by Fernet,* is an article called forth by the sufferings of the soldiers in the trenches this winter. Dr. Fernet recommends the wearing of a pair of cotton socks and over them a pair of woolen ones. For the hands he advises that kid gloves be worn next the hand and over them a pair of fur-lined gloves. In default of the latter, thin loosely knit woolen gloves should be worn. The principle is exactly that of double walls in a house.

3. **War Surgery in Base Hospitals and the Evacuation of the Wounded, by Temoin.* A translation of this article appears in Reprints and Translations, page 56.

4. **Wounds by Ricochetting Balls, by Rochard.* These wounds resemble those made by the bursting of a shell of small dimensions. The consequence of the ricochet is that the encounter with a hard body deforms the ball, renders it of irregular shape and gives it a seesaw movement which causes it to lacerate the tissues it penetrates. The wound of entrance is large, irregular, slashed; it leads to a cavity or a course of more or less sinuous depression, always infected, because the ball was contaminated in its contact with the object from which it rebounded and because on account of its irregular motion it pushes before it fragments of clothing.

The wound of exit is also irregular and larger than the wound of entrance.

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The ball causes great disorder in the soft parts, making a deep, sinuous, open cavity, lined with small gangrenous plaques and full of reddish discharge or of a pus more or less hemorrhagic.

The injuries to the skeleton are not important, for the very fact of having struck a foreign body before penetrating the human body diminishes considerably the penetrating force of the projectile and it stops at the least resistance.

What are the proofs of ricochetting balls?

First no one can dispute the fact that at the present time, with repeating guns and mitrailleuses, the number of balls sent in some minutes to the same point is considerable. Some go even so far as to say that the Germans no longer bring the gun to the shoulder and fire after sighting, the main idea being to send in a certain direction an enormous quantity of lead. Consequently many of the projectiles ricochet on the soldier himself, from his gun, the scabbard of his bayonet, the buttons of his capote. In striking the ground the balls ricochet from the pebbles. They rebound from walls and even in the air may strike against each other or against bits from shrapnel shells.

The following observations prove that certain wounds have been made by ricochetting balls:

There is, first, a certain wound of the iliac region. The radiograph shows that the crest of this wound, above which the ball is found, is absolutely intact. The patient is operated upon and in the wall at slight depth is found a ball whose point has been converted into a kind of small mushroom formed by the lead and the crenelated borders of the envelope. The ball has not been deformed by contact with the bone, since this is intact, and the slight depth at which the ball is found proves indubitably that it had spent its force in encountering some obstacle before entering the body.

A second example is that of a ball which has penetrated the anterior part of the calf. The radiograph shows it at one centimeter from the femur in midst of soft parts and the bone absolutely intact. But the ball is deformed, and is at first taken for a piece of shell. When extracted it is found to be only a ball which has been deformed by encountering an obstacle. It has not changed form by encounter with the femur, since this is intact, and if it had arrived in full force, even at the end of its course, it would not be deformed by simple contact with soft parts.

A third case is still clearer. The ball in question is shown by the radiograph to be at the level of the metacarpus, having frac-

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tured the second metacarpal almost without displacing it and to have slightly chipped the first. The form of the foreign body as shown by the radiograph is so peculiar that we think it a piece of shell and are astonished on extraction to find it a ball by the nature of its envelope. This projectile had encountered a hard body which had broken its metal envelope and under the shock the lead contained in the ball had been almost totally torn out, leaving on the inner side of the envelope and slashed to pieces a little soft mass. The metacarpus could not produce such a transformation, for the force necessary to bring it about would have completely torn away the finger, whose bone could not have offered sufficient resistance to empty the projectile of its contents, which would have certainly traversed the hand, and, moreover, the metal runner of the lead would have been found in the wound. The ball must have been broken by encountering an obstacle and in ricochetting had penetrated the hand, where it remained.

The important fact about ricochetting balls is that they act in exactly the same manner as dumdum bullets. A dumdum bullet is in fact only an ordinary ball composed of a metal envelope containing lead and from which the extremity of the metal point has been removed, which causes the lead under shock to form a sort of tumor and in place of a point the projectile presents a broken-shaped enlargement, which produces slashed and crelated wounds.

Not a day passes that one does not read in the papers that a surgeon affirms from conclusive evidence that he has encountered wounds produced by dumdum bullets. We do not dispute the possibility of wounds made by projectiles of this nature, but what we wish emphatically to bring out is that, scientifically, it is impossible, according to the nature of the wounds examined, to affirm that they have been produced by dumdum bullets, because a ball deformed in ricochetting can produce similar wounds. So in order to prove the use of dumdum bullets it is necessary to show that such bullets have been fired.

5. **Intravenous Injections of Camphorated Serum, by Dr. A. Rémond of Metz,* has for its object to make known a distinctly clinical process by which it is possible to render harmless and rapidly curable the considerable pulmonary and broncho-pulmonary morbidity which is feared for the men of the army at this season.

By dissolving cold camphor in isotonic serum for 24 hours there is obtained a limpid liquid which precipitates at the moment

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of sterilization and becomes clear on cooling. It is possible to raise its temperature to 37° C. without causing precipitation.

This liquid contains about 0 gr. 20 of camphor per 100 centimeter cubes. When this solution is injected into the vein at the bend of the elbow, all precautions being taken to insure the success of the intervention, there takes place in pneumococic infections an extremely rapid resolution of the general phenomena. This action is manifested by a violent shivering, by a considerable increase of temperature, often reaching 41° C., then a fall of temperature, the temperature returning to about normal with rapid amendment of all clinical symptoms.

The camphorated serum acts in the same manner as staphylococic and streptococic infections.

Its action is much more intense than that of oil of camphor on the respiratory centers and on the heart. Its antitoxic and general antiseptic action is remarkable. Its use is harmless. Dr. Rémond has used it to make disappear the hectic fever of tubercular subjects in advanced stages and that without accident. Dr. Rémond has used the camphorated serum for a long time in his clinic at Toulouse and has published his results and the complete bibliography of the question in the thesis of his pupil Gardel (March, 1914).

6. **Intrarachidian Injection of Antitetanic Serum with the Patient Placed at a Bulbous Incline, by Dr. Georges d'Hôtel.* The question of the treatment of tetanus is now more than ever the order of the day in France. The purpose of this new process of intrarachidian injection is to bathe in the antitetanic serum the bulb which appears to be the center of irritation of the Nicolaier toxins. The technic employed is briefly:

1. Lombar puncture and removal of cephalic-rachidian liquid.

2. Injection of 20 cubic centimeters of antitetanic serum, that is, a little less than the amount of liquid withdrawn.

3. The patient then placed in an inclined position of the head and shoulders, the pelvis elevated from 25 to 30 degrees, and kept in this position for at least two hours.

4. Later and according to indications a new intrarachidian injection and again the inclined position of the head and vertebral column.

The author says further: "For a long time the injection of antitetanic serum in the lumbar region has been employed with varying results. But the immersion of the bulbe by the inclined position has not before been done to his knowledge. This process

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he has employed with success in at least two cases, detailed observations of which were published in the *Revue Medicale du Nord-Est* in 1909 and 1910. Before affirming that the cure was due to the mode of treatment, observation of more cases is necessary. But certainly it is justifiable to affirm a decrease of spasmodic symptoms during the twenty-four hours after the immersion of the bulbe, the center of the tetanic contractions"

November 3, 1914.

7 *Report on an Antityphoid Vaccine Sterilized by Iodine. Netter.
8 Treatment of Tetanus by Large Doses of Chloral.

7. **Report on an Antityphoid Vaccine Sterilized by Iodine, by Dr. Netter.* This vaccine was favorably reported upon in July last by commission on serum and injectable products, and was authorized by a decree of May 15, 1895. The present report is called forth by the request to manufacture it, preferred by the directors of the medical laboratory of biology at Marseilles.

The report states that this vaccine is prepared in the following manner:

A culture of the Eberth bacillus, in bouillon, 24 hours old, is used to sow thickly the surface of boxes of nutritive agar-agar. These boxes are placed in a temperature of 37° C. At the end of 24 hours there is introduced into each box 50 cc. of physiologic sterilized water and by shaking, the microbian culture, which is in suspension in the liquid, is detached. The emulsions of the different boxes are then united in a sterilized retort and the whole is rendered homogenous by agitation, and with a dropper some drops are placed on the quadrillage of a Melassey blood measurer; a plate cover, whose edges have been rubbed with vaseline, is placed over the culture, which is left on a horizontal plane for two hours. Then with a microscope the number of bacilli in several squares are counted and multiplied by 20 to give the number in the diluted emulsion. By the addition of water salted 9/100 and sterilized this number is brought to 500 millions per cubic centimeter, account being kept of the solution of iodine of iodide of iron and of that of the solution of hyposulphate, which will be added later. The typhic bacilli of the emulsion are killed by the addition of a solution composed of 20 gr. metallic iodide, 40 gr. iodide of potassium and 1,000 cc. distilled water. The mixture is then shaken and left for 15 minutes, after which the emulsion is aspirated into the ball of a special sterilized glass having tubes and a small lateral recipient which permits the introduction of hyposulphate of soda and

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the transfusions without risk of stains. The bacilli remain 30 minutes in contact with the iodine solution, then the sterilized solution of hyposulphate is poured in drop by drop until the complete transformation of the iodine into iodide of sodium.

In short, the liquid contains standard typhic bacilli in suspension in physiologic water containing a small quantity of sodium iodide and of tetrathionate of soda, salts which are perfectly harmless. The emulsion is then sealed in glass ampoules.

The sterilizing action of iodine on microbes is well known. It not only kills the bacilli but weakens the typhic exotoxines and thus diminishes the reactions following the injections. With this vaccine the reactions do not exceed 0.30 per 100. It has been employed by the authors and other physicians on 1,000 persons and under varied conditions, notably in the epidemic at Marseilles. Workmen were able to undergo immunization without interruption of their work.

Office Internationale d'Hygiène Publique.

September, 1914.

9 The Protection of Public Health in Algiers.
10 The Hunting Out of Tuberculosis. Mme. Charlotte Olivier.
11 The Sleeping Sickness.

GERMANY.

Deutsche Militärärztliche Zeitschrift.

June 20, 1914.

12 The Electrocardiogram. E. Müller.
13 Eye Damage in the Army Due to Observation of the Sun Eclipse April 17, 1912. Mohr.

July 5, 1914.

14 Self-Management of Subsistence in Garrison Hospitals. Grützmacher.
15 Experience with Arthigon in Gonorrheal Complications. Mulzer.
16 *Treatment of Gonorrhea with Intravenous Injections of Arthigon. Riebe.
17 *Objection to Jacob Frank's article: "How Can the Mortality Rate of Abdominal Gunshot Wounds in War be Reduced?" Müller.
18 *Reply to the above. Jacob Frank.

16. **Treatment of Gonorrhea by Intravenous Injections of Arthigon, by Riebe.* Theoretically it seemed futile to look in the blood of gonorrhoics for specific protective bodies as one attack did not produce immunity. Müller, Oppenheim, Wassermann and Bruck found in 1906 in the blood of a few gonorrhoic patients gonococci-amboceptors, that is to say, protective bodies.

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The next step was to artificially produce these bodies in animals, which was attempted by incorporating the animals with gonococcal dilutions. Bruck succeeded in producing a serum containing specific immunizing bodies, but its application to man proved ineffective. Passive immunization proving useless it was planned to replace it with active immunization. The idea was stimulated from America, where Wright had shown that with the introduction of vaccines into the blood, the opsonic index after a negative phase rises, i. e., the blood is enriched by materials which make the bacteria more suitable for phagocytosis. Bruck now prepared a gonococcal vaccine, containing 20 million killed gonococci of different kinds in 1 cc., which proved effective after injection, in that there was local reddening and a rise of ½° to 1° C. These injections had also curative influence, especially in those affections in which closed foci permitted the development of antibodies (e. g., epididymitis, gonorrheal anthritis). Infection of the urethra, however, remained uninfluenced.

Neisser in 1913 instituted the intravenous injection of vaccine. This produced greater reaction so that the dose had to be diminished but proved also of some diagnostic value, inasmuch as there was a reaction in the sense of increased temperature in gonorrhoics only, never in those free from gonococci.

The author used the intravneous method in 27 cases, using the vaccine made by Schering under the name of Arthigon. The technique was as follows: 0.1 ccm. Arthigon was diluted with 0.5 ccm. normal saline sterile solution and injected. With the disappearance of the reaction after from two to four days another injection was given, each time increasing the dose by 0.1 ccm. until 1.0 ccm. was reached.

All cases were treated at the hospital as the method is often followed by a reaction as early as 10 minutes (chill and increase of temperature). In spite of this violent reaction there were no complications, so that the author accepts the injection as free from danger. A few complained of headache for a few hours, local reaction there was none, not even in a case where the restlessness of a patient produced an injection of 1 ccm. alongside the vein instead of into it. The author, contrary to the teachings of Bfuck, accepts one contra indication: fever at above 39 degrees C., as he has seen fever delirium lasting several hours in one case without any other injury. In epididymitis he brings down the temperature by rest and moist compresses before injecting the vaccine.

As regards therapeutic results, these injections have proved

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of great value in gonococcic arthritis and epididymitis. He has treated 12 cases of monarthritis with seven good recoveries (also functional); four improved considerably; in only one case ankylosis of the left shoulder joint remained in spite of energetic injections of Arthigon. Administered early, the injection is almost abortive in character, but the author has seen excellent results in a case after futile homeopathic treatment of eight weeks, and in which contracture to a right angle had already taken place (right keen). After the very first injection flexion and extension of the joint proved possible without pain. In almost all cases the pains disappeared early, even before objective improvement had become manifest.

All epididymitis cases did well, one case of periurethral infiltration improved in spite of the fact that incision seemed the only remedy to avoid dangerous consequences. The author saw also a case of gonorrheal endocarditis which improved after one injection (very severe reaction) followed by ice bag and rest. The diagnosis, however, is not absolute. Pyelitis responded well, but not so a case of cystitis.

(The abstracter desires to add that in well established cases of epididymitis a small incision of the tunica allowing the escape of fluid has proved the quickest means of producing a cure in 19 consecutive cases. Usually the patients can leave the bed and return to work in one week.)

First-aid treatment of Abdominal Gunshot Wounds, by Müller and Frank, is a polemic article on the value of early drainage of the peritoneum. Colonel Frank published his idea of the first treament of abdominal gunshot wounds in the April, 1914, issue of THE MILITARY SURGEON. In this article he demanded the establishment of early drainage of the abdominal cavity in abdominal gunshot wounds, even if such drainage had to be improvised. This revolutionary doctrine was ignored by our own military surgeons. A similar contribution appeared in Berlin and at once there developed a lively opposition. Müller in his article scathingly attacks Frank's idea. He believes that in the hands of sanitary personnel, non-commissioned as well as enlisted, or of soldiers themselves, the chances for infection by introducing drains will be greatly increased and that the hope of a reduced mortality expressed by Frank cannot be realized. Frank in his reply deprecates the need for improvisation in the absence of equipment enabling the institution of proper drainage and points out that asepsis on the firing line must remain an idle dream no matter

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under what circumstances treatment is carried out. Theorizing will not solve the problem, and only actual experience in battle will prove the soundness or unsoundness of his hypothesis.

RUSSIA.

Woyenno-Medicinski Journal.

January, 1914.

19 Psycho-Pathology of Self-Mutilation. M. I. Astwatsaturow.
20 *Organization of Surgical (Operative) Aid to Gravely Wounded in the Line of Principal Dressing Stations. G. G. Stromberg.
21 A Case of Traumatic Myositis Ossificans. W. P. Lindenberg.
22 Observations Abroad During the Summer of 1913. P. W. Lyubomudrow.
23 Some Observations in Lazaret Practice. P. I. Botchkowski.
24 A Case of Acute Multiple Neuritis with Facial Diplegia. W. W. Melusow.
25 Disinfection in Troops. A. N. Niolayew.
26 The Problem of Rapid Drying of Laundry. An Economic Drying Closet. I. P. Ilyin.
27 An Appliance to Preserve Meat in a Hot Condition. I. P. Ilyin.
28 Contribution to the Problem of Measurement of the Lower Extremities According to Official Instructions to Recruiting Physicians. W. Th. Pletenew.
29 Cure of Chronic Phagedenic Chancres by Artificial Fever. R. M. Ebius.

20. **Organization of Surgical Aid at Dressing Stations, by Stromberg,* is an earnest study of the problem concerning those gravely wounded who are not only in great need of operative aid but who cannot and, surgically considered, should not, be transported to the rear. The author has had occasion to study the entire problem of the conflict between humanitarian demands on one hand and military needs with special reference to evacuation of gravely wounded on the other hand in the Bulgaro-Turkish war, in which he participated as a Russian Red Cross surgeon. What struck him as peculiar is that during his activity he seldom saw injuries of the viscera (abdominal and thoracic cavities). He investigated and found that this was due to the poor organization of the frontal aid stations and to the bad transport of the Bulgarians. Accordingly, the presence of foreign Red Cross hospitals contributed very little to the saving of human lives because they were established too far in the rear, and were reached only after a transport lasting several days. During the storming of Adrianople, what a difference there would have been in the fate of the wounded if ample field hospitals had been mobilized in proximity to the battle!

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As it was, Stromberg's small hospital was the only one sent, and it is there he learned that the Bulgarians had taken no precautions to look after the wounded. There were scarcely any first aid packets, no gauze or similar material, no sterilizer, no hospital linen, no means for a good transport. The sanitary personnel had scarcely any training, the medical officers were poorly equipped for their professional tasks—surgeons few and far between. Under such conditions he felt he could bring little relief and accordingly planned to look after only those who had sustained the most dangerous injuries. Though he had endeavored to familiarize the Bulgarian surgeons with his ideal plan, and while it was understood by him that only slightly wounded should be evacuated and the gravely wounded brought to him from the surrounding "field hospitals," such as they were, either because of a misunderstanding or from motives unknown to him, he received almost 3,000 of a total of 3,600 wounded, under which condition his whole plan was naturally destroyed. In many cases these wounded reached him in from six to eight hours after receipt of injury. Stromberg seems to be a firm believer in the value of early laparotomy for perforating gunshot wounds of the abdomen. He reviews the literature of this mooted problem and disagrees entirely with the advocates of conservatism, especially if the conditions are such as to hold out a reasonable hope of success. This is the motive running throughout his lengthy address, for the article is an address delivered before the Russian Red Cross. Unfortunately out of a total of 37 abdominal wounds he could perform but one laparotomy *in lege artis*. He sutured four perforations of the small intestine and the man recovered. In another involving the liver, tamponade was resorted to. This patient also recovered. Of the rest 23, or 66 per cent, perished. The majority died from 48 to 72 hours after receipt of injury with the clinical phenomena of peritonitis and acute anemia. He does not doubt that many of these could have been saved by laparotomy if that had been done within eight hours after receipt of injury. Primary laparotomy would save many from secondary phenomena which eventually will lead to invalidism or death (fecal fistula, abscesses, suppurative peritonitis, etc.). Primary laparotomy at the frontal stations is followed by bad results for the reason that such places are not properly equipped for such serious work, and that the surgeons look upon such work as out of their province, there being no proper planning and organization for such an enterprise, the medical officers being busy with dressings, and with the assortment and evacuation of the wounded.

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Conditions as seen in the Boer war, when eventrated bowels were practically covered by myriads of flies, could give no other than an average of 70 per cent mortality in attempted resection. To conclude from such a condition of affairs that laparotomy is out of the question in all cases certainly is impossible. Haga and Pchhammer lately advocated special laparotomy operating stations, the latter basing his opinion on the excellent results obtained in peace practice (see also report in last issue by Major Allie W. Williams, U. S. A., G. M. B.), but the author believes that such a project will be successful only if such a station be stationary; that is to say, if absolute rest can be assured the operated patients.

As regards other injuries opinion is hardly divided. All cranial and especially tangential shots must be treated by débridement, as conservative treatment cannot prevent infection, meningitis, brain abscess, etc. Rest and regular dressings must follow, which again shows the need of a stationary hospital. To cranial injuries must be added grave wounds of the chest, especially with an open pneumothorax in which operation under positive pressure can save life. Finally all serious fractures and injuries of the urinary apparatus cannot have a good prognosis if the patients must undergo a torturing transport.

Stromberg proceeds to outline what in his opinion represents an ideal organization of aid on the battlefield. He does not in the main deviate from the accepted plan of military medical stations of the Russian army, which is essentially similar to our own, but demands that the Red Cross establish a suitable station at the main dressing station which must remain in the once established place irrespective of the progress of battle.*

To substantiate the justification of such a demand Stromberg quotes extensive statistics from the last war in Manchuria. At one dressing station about 2,400 wounded were received; 72 per cent of the wounded showed injuries of the soft parts and upper extremities, therefore they could proceed to the rear unaided. Of the remaining 30 per cent approximately 10 per cent were injured in the lower extremities, the remaining 20 per cent involving injuries of the head, chest, spine, abdomen and pelvis.

* To us such an advanced position of a Red Cross organization will appear strange, but it must not be forgotten that in Russia the Red Cross is not only a very influential but well equipped organization possessed of enormous funds. Indeed the Russian Red Cross in the Manchurian campaign was so much better organized and equipped than the army sanitary service that in the beginning of the campaign it did most of the effective first-aid work at the front and from all accounts it seems that the Red Cross officials must have had unusual powers, regular army surgeons often appealing to representatives of that society when taking exception to unjust rulings by the military authorities.—G. M. B.

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Some of these must have been fit for transportation. There are left, therefore, about 8/10 per cent who cannot be transported; that is to say, in round figures 200 wounded. While an institution to accommodate 200 such gravely wounded for each division* is essential, it must not be assumed that all wounded will come to the station at once. In a battle lasting several days it is reasonable to assume that 50 to 70 men will be accepted per day, necessitating about 25 operations in that period; but even if all cannot be at once operated on, the wounded will at least enjoy rest and observation (nursing). The complement of surgical personnel will, of course, have to be doubled. The removal of 200 wounded from transport will relieve the limited transportation force of the division, to the benefit of the less seriously wounded.

In considering the tactical situations Stromberg discusses the proper locality in defense (forts) and in attack with a view to insuring the wounded against artillery fire. In the event of a defeat it is better to allow the wounded to fall into the hands of the enemy than to kill them by a dangerous transport. He cites the case of the famous surgeon, Zoege v. Manteuffel, who, on refusing to evacuate his station because of the gravely wounded and expressing his desire to remain with them until the Japanese arrived, was threatened with force by General Trepoff, who, though a layman, was the military head of the entire sanitary service. The Russian authorities evidently had little confidence in Articles 12, 14 and 16 of the Geneva Convention.

ENGLAND.

Journal of the Royal Army Medical Corps.

October, 1914.

30 Some Essential Factors in the Construction of Field Service and Expeditionary Rations. W. W. O. Beveridge.

31 The Treatment of Syphilis with Salvarsan. T. W. Gibbard and L. W. Harrison.

32 Improved Method of Carrying a Wounded Man by a Single Bearer. D. B. McGrigor.

33 Army Biscuit Receipts. L. M. Badcock.

34 A Modified System of Accounting for Medical and Surgical Supplies in Military Hospitals. W. E. Squires.

35 Recollections of General Practice from 1857 to 1883. A. Frederick Bradshaw.

36 Carbon Dioxide with Special Reference to the Treatment of Oriental Sores. T. J. Mitchell.

* A Russian infantry division consists of four infantry regiments with a total of approximately 15,000 bayonets.—G. M. B.

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The Lancet.

November 7, 1914.

37 *The Wounded in the War: Some Surgical Lessons. D'Arcy Power.
38 The Wounded in the War. (Leading article.)

37. **The Wounded in the War. Some Surgical Lessons, by D'Arcy Power.* The net result of observations as given in this article is that in war surgery, as in civil practice, meddlesome surgery is generally bad surgery. It is better to wait than to operate unless the patient is losing ground. As the chief infection comes from the patient's own skin, antiseptic surgery is preferable to aseptic methods. Dry dressings must give place to compresses and fomentations wherever possible. Iodine applications seem to be more effective than solutions of perchloride and biniodide of mercury, which have hitherto been generally used.

November 14, 1914.

39 Some Problems of Gunshot Fractures. Ernest W. Hey Groves.
40 The Incidence of Plague in Europe with Special Reference to the Rôle Played by the Rat. C. Strickland.

November 21, 1914.

41 *An Address on the Treatment of Wounds in War. W. Watson Cheyne.
42 Note on the Wounds Observed During Three Weeks Fighting in Flanders. G. H. Makins.
43 The Position of Belgian Doctors and Pharmacists. C. Jacobs.

41. **An Address on the Treatment of Wounds in War, by Sir W. Watson Cheyne,* states, among other things, that at the present time great stress is being laid on the particular kinds of organisms which may have entered the wounds, but very little is said about disinfecting the wounds. Instructions are being given that immediately the patient comes under treatment he shall have a subcutaneous injection of intitetanic serum and another of polyvalent antisepsis vaccine. The writer thinks it well, in military surgery at any rate, to inject these substances as advised. He does not think it necessary in naval surgery to inject antitetanic serum. He is doubtful about the value of both treatments and is worried lest their employ shall lead to the avoidance of the necessary clinical antiseptics. He advocates the use of antiseptics only at the very commencement of treatment, but at that time, in order to serve the purpose, they must be sufficiently powerful. He is opposed to their use in suppurating wounds.

The article discusses the treatment of wounds if more than

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24 hours old, and 48 hours old. It also discusses their drainage and irrigation. The article is by far the most practical and to-the-point article we have seen on the wounds of the present war.

November 28, 1914.

44 *On the Localization of Bullets and Shrapnel. Walker Overend.
45 The Menace of Cholera in the War.
46 The Height Standard and Recruiting.
47 Comforts for the Royal Army Medical Corps.
48 The Wounded at Calais and Dunkirk.
49 Chloroform in France.
50 Motor Cars for the French Red Cross.
51 The Cleaning of Ambulance Trains.

44. **On the Localization of Bullets and Shrapnel, by Walker Overend.* At the present time, when it is the frequent duty of every radiologist to locate the position of bullets and fragments of shrapnel in the human body, the necessity of reliable and expeditious methods is obvious. This article describes methods based on the well-known fact of the displacement of the shadow when the target or anticathode is moved out of the direct line. The article is illustrated and explained by means of a diagram and the reader is told where he can purchase the localizer, the calculating tables and the rule.

INDIA.

The Indian Medical Gazette.

November, 1914.

52 Asylum Dysentery. P. Hefferman.
53 Two Cases of Hysteria in Males. P. Hefferman.
54 *Prevention and Treatment of Septic Wounds in Warfare. F. W. Sumner.

54. **Prevention and Treatment of Septic Wounds in Warfare, by F. W. Sumner,* explains the author's methods in the use of autogenous vaccines and describes illustrative cases. An animal's wound practically never becomes purulent because he licks it and the saliva with the toxins licked from the wound is swallowed. It is to be noted that the animal is ingesting pure toxins. Here is a lesson of nature's to follow. Heat, antiseptics, keeping in stock, all alter, modify or render inert the toxins. Hence the disappointing results of the vaccine treatment. In applying the natural autogenous treatment to wounds received in warfare the following procedures must be carried out:

1. No antiseptics to be placed on the wound.
2. Where possible the wound to be placed in the mouth and

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sucked for five minutes every two hours, or oftener, for three days.

3. Any foreign body to be taken out of the wound (bits of clothing, etc.) and placed in the mouth and well chewed for five minutes. The saliva, juices, etc., from the wound or foreign body to be swallowed, the foreign body to be spat out.

4. Where the mouth of the wound is small and tends to close up, retaining the discharges, it must be kept open by inserting a few strands of cotton, bit of bandage, etc., to act as drain.

5. When wound cannot be placed in mouth, take a piece of clean rag, dip in clean drinking water, squeeze out as much water as possible and then apply rag to wound to soak up the discharges. After two hours place this rag, after wiping the wound with it, in the mouth and chew well for five minutes. Repeat the process every two hours, being especially careful where the wound is small to take out the drain each time and chew it with the rag, and to put in a fresh drain at each dressing.

Another equally efficacious method is to take off the dressing morning and evening only, place each dressing in an ounce of saline solution (sterile) and allow to stand for 12 hours; then filter through a Pasteur, Chambeland or Berkefeld filter candle and inject subcutaneously 4 cc. of the filtrate at once, viz., two injections freshly prepared daily.

Nothing but boiled water may be used to clean the wound at each dressing.

As regards the "rag," it matters not at all whether it is aseptic or not, as any organisms in it will by this method produce their own antibodies and their own destruction.

Where a wound is seen only after pus formation has occurred, the quantity and virulence of the organisms do not allow of the above treatment. In such cases take pus M 6, Aq. Dist. 1 oz.; stand for 12 to 24 hours, occasionally shaking the filter (a P., C. or B. candle is most convenient) and inject at once subcutaneously M 20 (i. e., pus M ¼); throw the rest away. The standing and agitation cause some autolysis of the organisms, so that the filtrate contains both endogenous and exogenous bacterial substances. Probably there will be no need of a second injection. Local redness of the injection site and a general reaction point to the vaccine doing its work properly.

Needless to say all operations must be done with the greatest antiseptic care or an abscess at the site of injection will result. This has happened several times under the author's observations, but no ill effects followed, the abscess being opened with a small

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puncture. He emphasizes the fact that pure unadulterated toxins, germ free, are thus injected, and the result is infinitely superior to other vaccine treatment. The pus becomes thinner, less in quantity and all smarting in the wound disappears. In a week, if the wound is still discharging pus, another injection may be prepared in the same way and the same dose given. The method has the added advantage of requiring no expensive or cumbersome apparatus.

SWITZERLAND.

Bulletin International des Sociétés de la Croix Rouge.

October, 1914.

55 The American Red Cross Work at Vera Cruz.
56 French Decree of August, 1914, concerning the Use of the Red Cross Emblem.
57 The Wearing of a Red Cross Uniform and this Uniform.
58 The English Red Cross and the Present War.
59 Letter from Sir John Furley About the Abuse of the Red Cross.

CANADA

The Canadian Association Medical Journal.

October, 1914.

60 Vascular Crises and Angiospasm. Arthur Birt.
61 *Paroxysmal Tachycardia with Review of Four Cases. W. F. Hamilton.
62 Recent Investigations of the Semi-circular Canals and Their Clinical Applications. D. H. Ballou.
63 *The Medical Profession of Alberta and the Defense of the Country. Lorne Drum.
64 *National Defense and the Medical Profession. S. W. Hewetson.
65 Antityphoid Inoculation at the Winnipeg General Hospital. Sydney T. S. Pierce.
66 Subtrochanteric Fracture of the Femur. W. G. Anglin.
67 A Case of Tetanus with Recovery Treated by Carbolic Acid Injections.

61. **Paroxysmal Tachycardia with Review of Four Cases, by F. W. Hamilton,* affirms that the treatment of this condition must remain unsettled until a remedy is found based upon a knowledge of the underlying causes now not understood. The heart muscle is often found degenerated in cases of paroxysmal tachycardia and mitral stenosis and myocardial degeneration are found in a high percentage of cases. The treatment resolves itself, therefore, in many cases into the treatment of such conditions after the normal rate is approached or reached.

63. **The Medical Profession of Alberta and the Defense of the Country, by Major Lorne Drum,* is a brief outline of the

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method by which it is proposed on the outbreak of a war of national defence to extend the present incomplete militia medical organization into a complete medical service capable of coping with all the essential details of a rapid evacuation and an efficient care and distribution of the casualties.

64. **National Defence and the Medical Profession, by S. W. Hewetson,* is a brief paper having as its object to prove the vital necessity of observing the maxim, "In times of peace, prepare for war."

UNITED STATES.

Journal of The American Medical Association

December 12, 1914.

68 *The Proper Dosage of Diphtheria Antitoxin. Schick.
69 *Meningitis Vaccination. J. A. Black.
70 *Essential Renal Hematuria. W. M. Spitzer.
71 Gastro-Intestinal Studies. M. E. Rehfuss and P. B. Hawk.
72 The Cardinal Clinical Signs of Fracture. W. G. Stern.

68. **The Proper Dosage of Diphtheria Antitoxin, by Shick,* shows that the main effect of the antitoxin is one of immunization; that is, a suitable dose of antitoxin renders the individual immune to a dose of toxin administered later. On the other hand, even a large dose of antitoxin has but slight effect on the action of toxin injected previously. To be sure, there is some effect on toxin introduced from three to six hours before the injection of antitoxin, and in exceptional cases an enfeeblement of the effect of the toxin introduced nine hours before the antitoxin was given; in other words, the main effect of antitoxin injection is to protect against toxin acting after the antitoxin is introduced. Further observations showed that a maximal effect is obtained with a dosage of 500 units per kilogram; larger doses have no greater influence, either on simultaneously injected toxin or on toxin injected twenty-four hours afterward. The retroactive effect on toxin injected three hours earlier is very slight even when 500 units per kilogram are given, and such large doses have only a slightly better effect than doses of 100 units per kilogram.

In the treatment of human diphtheria, therefore, Schick and his colleagues recommend (1) that the injection be given at the earliest possible moment; (2) that it be given intramuscularly; (3) that in all mild and medium cases of diphtheria (and these make up about 90 per cent of all cases) a single dose of 100 units of antitoxin per kilogram suffices, and (4) that in the

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severest cases 500 units per kilogram may be injected. In other words, in a child weighing 20 kg. (or 44 pounds), 2,000 units will, in 90 per cent of the cases, suffice, while in 10 per cent of the cases of the most severe type a dosage of 10,000 units may be given. In an adult weighing 60 kg. (or 132 pounds), a dose of 6,000 units will suffice in all the ordinary cases, whereas in the severest cases a single dose of 30,000 units may be given.

One of the most important of Schick's observations is that repeated injections of the serum are superfluous and not warranted. Even in the severest cases he asserts that if a dose of 500 units per kilogram be injected immediately the greatest good possible will be obtained. Subsequent injections of antitoxin after six, twelve or twenty-four hours are, he maintains, unnecessary, for any further effect of toxin is prevented by a single dose of the size mentioned. If the diphtheria patient dies, it is because the toxin elaborated by the organisms in his body has had time to act before the antitoxin was injected, and cannot by any means as yet known to us be afterward inactivated. The only circumstance in which a second injection is of value is when the first injection given has been smaller in dose than the optimal doses recommended; then one may give a single dose of 500 units per kilogram.

In persons exposed requiring an immunizing dose, a single injection of 50 units per kilogram is sufficient.

If the conclusions drawn by Schick and his colleagues from these interesting studies be correct, it is obvious that the practitioner will, from now on, be provided with a precise method of treating diphtheria patients hitherto much desired.

69. **Meningitis Vaccination, by J. A. Black,* is supplementary to the author's former paper and reports subsequent work and observations on seven of the ten medical students who were volunteer subjects of his former complement-fixation studies. All but one of the eight tested gave decided fixation in the dilution of 1.20, and this two years after date of vaccination. He draws the following conclusions from these studies: "1. Prophylactic vaccination produces a high degree of immunity in most cases, this immunity being demonstrable at the end of two years. It seems a justifiable conclusion that most persons prophylactically vaccinated may safely consider themselves immune for at least two years. Exceptions to this will, of course, be found. 2. Some individuals may show an actual increase in immune bodies at the end of one year over those demonstrable soon after vaccination. 3. Fixation occurred with the serum of the posi-

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tive control who has recovered from meningitis, but this fixation did not reach as high dilution as did that of some of those vaccinated. This has previously been found also in some others recovered from the disease. 4. Experimental evidence warrants us in concluding that prophylactic vaccination is a measure of the greatest value in the control of epidemic meningitis."

70. **Essential Renal Hematuria, by W. M. Spitzer,* discusses the causes and treatment of continuous painless renal hemorrhage, including cases in which there is steady bleeding from the kidney over a considerable period of time, unaccompanied by pain, except such as could be readily explained by the plugging of a ureter by a blood-clot. The designation should be applied only when nothing pathologic other than blood exists and when no lesion can be demonstrated by a competent neurologist. Such bleeding has been attributed to a glomerulo-nephritis or to a renal hemophilia, etc. In Spitzer's opinion the prime cause is chronic congestion, due to impaired outflow of the blood from the impaired kidney. This would naturally come to pass in certain conditions of the kidney, because the caliber of the vein is more easily reduced in size than that of its companion artery, for the following reasons: "1. Because its wall is thinner than that of the artery. 2. The pressure behind the inflow is many times greater than in the renal vein. 3. Because there are, as a rule, multiple renal arteries, while multiple renal veins are the exception. If this passive congestion lasts a certain length of time we shall find the identical changes that are seen in kidneys removed for essential renal hematuria." Another reason for his belief is that these cases of essential renal hematuria cease to bleed spontaneously and sometimes never recur. Spitzer asks how we can account for these better than by assuming that the kidney, after being twisted on a narrow pedicle so as to narrow the caliber of the vein, later resumes its proper position. He mentions several cases under his own observation which seem to him to support his views, and concludes that the bleeding is due to passive congestion; the structure of the kidney being such that it must necessarily bleed under conditions arising from the twisting of the kidney on a short pedicle. Operative interference is only justified when necessary to save the patient's life because of increasing secondary anemia. Bisection of the kidney is in this condition contra-indicated and is dangerous.

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The Medical Council.

December, 1914.

73 Rheumatism and Rheumatic States.
74 What Our Government is Doing for Medicine and What It Can Do for You.
75 Clinical Therapeutics for the Winter Season. M. Clayton Thrush.
76 New Serum Treatment of Epilepsy. Wm. Held.

International Journal of Surgery.

October, 1914.

77 Visceral Ptosis. A. John Walscheid.
78 Movable Kidney and Its Relation to Trauma. Lewis Wine Bremerau.
79 *The Close Relation of Railway to Military Surgery. *Editorial.*
80 Fractures of the Long Bones. F. William White.

79. ***The Close Relation of Railway to Military Surgery.*** (Editorial.) If the United States, says the writer, should ever be involved in a war, there is no body of men, aside from the members of the army and navy medical corps, who could render more effective surgical service than the railway surgeons. The very nature of the work they are called upon to perform demands those qualities which should be possessed by the surgeon on the battlefield. To them the hasty summons to a railroad wreck where a large number are injured is a matter of routine, and it is upon their courage and resourcefulness in the face of difficulties—no less than their skill—that the issue between life and death often depends. Another feature of the railway surgeon's duties closely allied to those of the military surgeon is that to him is intrusted the sanitation of the road with which he is connected, the physical and mental examination of employes and applicants for employment, and the conservation of the health of the traveling public by the elimination of sources of infection and unhygienic conditions. Hence the good railway surgeon is in every way equipped to make a good army surgeon.

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Reviews

A Manual of Practical Hygiene for Students, Physicians and Health Officers. By Charles Harrington, M. D., late professor of Hygiene in the Medical School of Harvard University. Fifth edition revised and enlarged by Mark Wyman Richardson, Secretary to the State Board of Health of Massachusetts, in collaboration with the following officers connected with the Massachusetts State Board of Health: H. W. Clark, chief chemist; X. H. Goodenough, chief surgeon; William C. Hanson, M. D., assistant to the Secretary; Hermann C. Lythgoe, chief analist of food and drugs department, and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. 8vo, 933 pages, illustrated with 24 plates in colors and monochrome and 125 engravings. 1914. Lee & Febiger, Philadelphia and New York.

The growth of sanitary science has been so great in the last few years that it is impossible for any one man entirely to encompass the subject. Harrington's book has been standard for many years and in the present edition there has been no retrogression. The book has been minutely revised and includes expert knowledge of all phases of sanitary hygiene. The chapters on foods, water supply and disposal of sewage and disposal of garbage and hygiene of occupation have been practically rewritten and the chapter on medical inspection of schools is of especial value. Seventy-four pages are devoted to military, naval, marine and tropical hygiene, and these three chapters give in tabloid form what is worth knowing on this subject of vital interest to the military surgeon. These three chapters published separately would be most valuable for the instruction of militia medical officers.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By Sir Patrick Manson, G. C. M. G., M. D., LL.D., F. R. C. S. London. F. R. S., etc. Nine hundred and thirty-seven pages with 12 color and 4 black and white plates and 239 figures in the text. Fifth edition, revised throughout and enlarged. 1914. Cloth, $5.00, net. William Wood & Co., New York.

Manson's "Tropical Diseases" was the pioneer textbook on this subject, and in all the years since the appearance of the first

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edition, its place as a classic has never been questioned. The various editions have marked by their revision the evolution of our knowledge of this topic which has been of ever increasing importance. This country first acquired tropical possessions in 1898, and since the appearance of the fourth edition in 1907, great strides have been made in our knowledge of the diseases of warm climates. In the edition under consideration the results of research work on tropical diseases are set forth and brought up-to-date, even the Salvarsan treatment of yaws and relapsing fever, the treatment of trypanosomiasis by antimony and the use of emetine in the diagnosis and treatment of amebic dysentery and amebic abscess of the liver being discussed. A suggestion to the publishers is that subsequent editions of this book, which is so valuable to every medical officer, be printed on India paper and have flexible covers that the book may be the more easily handled and more easily carried under service conditions.

LOCAL AND REGIONAL ANESTHESIA, INCLUDING ANALGESIA. By Carroll W. Allen, M. D., of Tulane University, New Orleans, with an introduction by Rudolph Matas, M. D., of Tulane University, New Orleans. 8vo. 625 pages with 255 illustrations. 1914. Cloth, $6.00. net; half morocco, $7.50, net. W. B. Saunders Co., Philadelphia and London.

The almost simultaneous appearance of this volume and Crile's work on anoci-association indicates the interest which is being taken in the avoidance of the dangers of general anesthesia and the substitution wherever possible of one of the forms of peripheral analgesia. Dr. Rudolph Matas, the Nestor of southern surgeons, had been working along these lines for nearly 20 years and had in preparation a work on this subject. The increasing responsibilities of Dr. Matas' varied interests diverted his attention from this subject, and what was at first a collaboration with Dr. Allen, became so overwhelmingly Dr. Allen's work that Matas with chracteristic modesty gave up all thought of authorship and left the field free for Dr. Allen, giving him the benefit of all his accumulated data on the subject of regional analgesia. The author has shown himself worthy of the confidence reposed in him by Professor Matas and the result is an excellent, systematically arranged and clearly expressed treatise on this subject, which of late years has taken so important a place in surgical technic. After considering the history of the subduing of pain he discusses the references and the sensations with special

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reference to pain, the phenomena of osmosis and diffuson, the anesthesia due to pressure anemia and then takes up seriatim the various local anesthetic agents and follows this by a detailed technic of local and regional anesthesia. The value of the book is greatly increased by a number of excellent and clear illustrations and by a well constructed and complete index.

MORRIS HUMAN ANATOMY. Edited by C. M. Jackson, M. D., Professor of Anatomy, University of Minnesota. Fifth, revised and largely rewritten edition. 8vo. 1,539 pp. 1914. Price, $6.00. P. Blakiston's Son & Co., Philadelphia.

Anatomy, the foundation of all medical study and knowledge, always has and always will be a difficult subject for both the teachers and the student. The grounding acquired, the studious practitioner must often return to refresh his mind or to secure special detailed information. Morris' work has attempted in this edition to satisfy the needs of the student and practitioner, an arrangement in the typesetting marking externally what is for student and what for investigator. The work itself is divided into thirteen sections. A short introduction is followed by a section on morphogenesis, written by the editor. Various individual systems are treated in different sections by prominent teachers. The last section is devoted to clinical (topographic) anatomy and, considering the limitations allotted the author by the general arrangement of the book, is remarkably good.

The text is enhanced by eleven hundred and eighty-two illustrations, many of them in colors.

Taken all in all the present volume is an exceedingly valuable up-to-date text and reference book of anatomy.

PRÉCIS DE CHIRURGIE DE GUERRE. By Edmond Delorme, Surgeon General, French Army. 1914. 218 pp. Masson & Co., Paris.

Delorme, well known to military surgeons as an authority on military surgery, delivered August 10 last a lecture before the Institute of France entitled, "Counsels to Surgeons," which was received in patriotic silence and ordered printed and distributed. Briefly, the author discusses weapons, ballistics, the character of wounds and their treatment in 21 small chapters.

It is difficult to criticize a work making no pretense to being a textbook or even a manual, but a sort of repetitorium un-

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doubtedly intended as a guide for the surgeons assigned to sanitary formations. Delorme has been too long identified with medico-military science to be able to write anything but a good book, but nevertheless no attention has been paid to the different treatments at the various sanitary institutions in the field. One perusing the work would conclude that the indications of therapeutic measures are alike in field as well as in base or home hospitals.

A book on war surgery, to be of practical value to all military surgeons, must reckon with the regimental, ambulance company, field hospital and evacuation hospital surgeons. A textbook for surgeons assigned to base and general hospitals does not have to be written—any encyclopedic work is the very thing—for war surgery differs from civil surgery only in the field; from the base hospitals rearward there is no difference.

THE CLINICS OF JOHN B. MURPHY. Vol. III, No. 4, August, 1914. 617-869 pp. W. B. Saunders Co., Philadelphia.

This volume of Murphy's Clinics is undoubtedly the best and most interesting that has yet been issued. Replete with well-executed photographs showing practically every step of the operation of arthroplasty of the hip, and for luxation of the patella the reader is getting a better substitute for a personal visit to Mercy Hospital than has been afforded in the past. The text, too, is lucid and not quite so "spread out" as we have had occasion to criticize in previous volumes, but is pointed and crisp. The very first chapter on surgical diagnosis is highly instructive though reminiscent.

PROGRESSIVE MEDICINE. A Quarterly Digest. Edited by Hobart Amory Hare. December, 1914. Vol. XVI, No. 4. 413 pp. Lea & Febiger, Philadelphia.

This is the last book of the year and is devoted to a scientific and critical review of the progress made in the following subjects: Diseases of the digestive tract, liver, pancreas and peritoneum (Goodman); kidneys (Bradford), Genito-urinary system (Bonney), general surgical topics (Bloodgood), and, last but not least, "practical therapeutic referendum" (Landis).

This volume contains many instructive and well-executed illustrations, tables, etc.

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Considering the difficulties of selecting from the great mass of contemporaneous literature articles of real progress and to present these predigested, this volume is a really excellent and valuable literary contribution.

FIELD AMBULANCE NOTES. By. Capt. M. F. Grant, R. A. M. C. 16vo. 146 pp. 1914. Forster, Groom & Co., Ltd., London.

This is a little book for junior medical officers. It is based on the official regulations and its purpose is to inform them in the briefest possible manner regarding their duties in mobilization, in the field, etc. One small chapter is devoted to the equivalent organization of the ambulance service of most European countries and Japan. As a good deal is said of equipment of the dressing station, signaling, transport, care of horses and similar subjects of interest to medical officers assigned to ambulance companies and field hospitals of our own services, this little work will prove interesting reading for the comparison of methods, organization and field equipment, if for nothing else.

THE INDIAN CATECHISM OF FIRST AID. Major R. J. Blackham of the Royal Army Medical Corps. Simla: The St. John Ambulance Association. 1914. 16mo, 94 pp. Price six annas.

The usual subjects taught to first aid classes have been arranged in this little brochure in questions and answers. While originally prepared for Red Cross classes to cover all emergencies, many of the questions are suitable for classes of hospital corps men as well. The brochure is so cheap that commanders of sanitary units would do well to place a copy in the hands of each of their squads for self-examination. Certainly every teacher of first aid should add such a one to his teaching outfit.

THE PHILOSOPHY OF RADIO-ACTIVITY OR SELECTIVE INVOLUTION. By Eugene Coleman Savidge. 1914. New York: William R. Jenkins Co. 151 8vo pp.

This is a serious philosophic essay with a terminology which will prove difficult reading to the average medical practitioner. Theories are advanced which survey with the eye of the philosopher the great biologic problems of life and death. From a

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practical point of view the influence of radium on cells as far as it is treated in this work will leave the reader rather bewildered. Men who have paid attention to germination, to the ultra-microscopic study of cells and to electrons, will find here a mental dish Lucullian in richness. To the technician, who looks upon his work as mere craft, the very first chapter presents an insurmountable barrier. The work should be read by all medical men of a philosophic turn of mind, even if they are not interested in radio-activity as a therapeutic agent.

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News of the Services

ARMY

Maj. J. L. Bevans has arrived at Fort McKinley, Me., for duty.

Col. Guy L. Edie has been granted one month's leave of absence.

Capt. T. E. Darby spent his leave of absence at Barnsville, Md.

The leave of absence of Maj. C. C. Collins has been extended one month.

Maj. Frederick F. Russell has been granted one month's leave of absence.

Maj. James L. Bevans will report for duty at Fort H. G. Wright, New York.

Lieut. Harry Q. Fletcher, M. R. C., has been ordered for duty to Trinidad, Colo.

Capt. Alex Murray has left Fort McDowell, Cal., for one month's leave of absence.

Lieut. Edwin P. Seaver, M. R. C., has been assigned to duty at Fort Rodman, Mass.

Lieut. L. K. Falkner, M. R. C., has been ordered to active duty at Fort Niagara, N. Y.

Maj. Weston P. Chamberlain has been granted one month and seven days' leave of absence.

Lieut. Harry N. Mayo, M. R. C., has been relieved from further duty at Fort Douglas, Utah.

Capt. Nelson Gapen has been granted two months' leave of absence, effective on December 5.

Col. Henry P. Birmingham upon his arrival from Vera Cruz will return to his proper station.

Capt. James S. Fox has been granted twenty-one days' leave on physician's certificate of disability.

Mr. Robert Arthur, brother of Col. William H. Arthur, died in New York City, October twentieth.

Lieut. Chester R. Haig was married to Miss Hilda Morse at Merchantsville, N. J., November 11, 1914.

Capt. Ernest R. Gentry upon his arrival in the United States will take station at Fort Screven, Ga.

Maj. F. C. Baker arrived in the United States on November 13 and is on two months' leave of absence.

Maj. James W. Van Dusen upon his arrival in the United States will take station at Fort Niagara, N. Y.

Capt. Albert S. Bowen upon his arrival in the United States will be assigned to duty at Monterey, Cal.

Mrs. Frances Jordan King, mother of Capt. Charles T. King, died at Wellsboro, Pa., November 12, 1914.

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A daughter, Flavia Lois, was born to Captain and Mrs. F. N. Chilton at Manila, P. I., November 10, 1914.

A daughter was born to Captain and Mrs. Henry L. Brown at Fort Slocum, N. Y., November 22, 1914.

Prof. J. C. Smith, father of Lieut. Talbot Smith, U. S. Cavalry, died at Mansfield, Ga., November 10, 1914.

Lieut. Charles D. Ricker has been assigned to active duty at Fort Sam Houston, Tex., from January 1, 1915.

A daughter was born to Captain and Mrs. William Kay Bartlett at Fort Ethan Allen, Vt., November 3, 1914.

Capt. Leonard S. Hughes has been granted three months' leave of absence on his arrivel in the United States.

Lieut. Albert H. Eber, M. R. C., upon his arrival in the United States will report for duty at Fort Douglas, Utah.

Capt. Junius C. Gregory has been relieved from duty at Fort Slocum, New York, and ordered to Philadelphia, Pa.

Lieut. Arnott K. Duncan, M. R. C., will proceed to Fort Sam Houston, Tex., January 1, 1915, for assignment to duty.

Capt. J. P. Fletcher left San Francisco, Cal., for Janesville, Wis., on November 20 for three months' leave of absence.

Lieut. Col. Henry D. Snyder upon his arrival in the United States from Vera Cruz will report to his proper station.

Lieut. Thomas S. Lowe, M. R. C., upon his arrival in the United States will report for duty at Fort Rodman, Mass.

Capt. Junius C. Gregory, stationed at Fort Scriven, Ga., has been the guest of Dr. Francis P. Upshur of Richmond, Va.

A daughter, Jean, was born to Lieutenant and Mrs. William D. Herbert at Fort Sam Houston, Tex., October 27, 1914.

Lieut. John W. Meehan has been relieved from duty at Fort Bliss, Tex., and ordered to Empire, Canal Zone, for duty.

Capt. Joseph E. Bastion has been granted one month and fifteen days leave of absence, effective from December 20, 1914.

Dr. S. J. Barber, father of Captain J. R. Barber, M. C., a veteran of the Civil War, died in Portland, Ore., October 13, 1914.

Captain and Mrs. Eugene G. Northington, who have been visiting at Camp Eldridge, Laguna, P. I., have gone to Manila.

Capt. George Cook arrived in the United States on November 13 and left San Francisco for a three months' leave of absence.

Capt. William A. Duncan upon completion of his present duty will proceed to Fort Leavenworth, Kan., on official business.

Lieut. Luther E. Poust has been granted two months and twenty-nine days' leave of absence when his services can be spared.

Lieut. L. S. Chappell, on duty at Fort Bliss, Tex., is spending a portion of a two months' leave in a visit to relatives in Washington.

Capt. Leon Garcia and Mrs. Garcia, who have been spending a leave of absence in California, have returned to Fort Rodman, Mass.

Capt. Julian M. Cabell has been relieved from duty with the Fifth Brigade and assigned to duty in the office of the Surgeon General.

Maj. Elbert E. Persons upon his arrival in the United States from Vera Cruz has been ordered to report for duty to Washington, D. C.

Maj. Sanford H. Wadhams has been assigned to duty as inspector-instructor of the Medical Corps of the National Guard of New York.

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Capt. S. M. DeLoffre has been granted a two month's leave of absence, the greater part of which he expects to spend in hospitals in New York City.

Dr. Lovell Langstroth, San Francisco, was married to Miss Dora Winn, daughter of Maj. Frank Winn, U. S. A., in San Francisco, October 23, 1914.

Lieut. Harry T. Lay, M. R. C., has resigned his commission and his resignation has been accepted by the President, and took effect December 15, 1914.

Capt. John A. Burket has been granted two months' leave upon his arrival in the United States, after which he will report for duty at Fort Logan, Colo.

Maj. and Mrs. Roger Brooke announce the birth of a son, Roger Brooke, Jr., at the Letterman General Hospital, San Francisco, Cal., October 19, 1914.

Maj. Frederick M. Hartsock has been relieved from duty with the Second Division and assigned to duty at the Medical Supply Depot, New York City.

Lieut. W. W. Vaughan spent his recent leave of absence in Washington with his father, Dr. George Tully Vaughan, formerly Assistant Surgeon General, U. S. P. H. S.

Lieut. Alvin Charles Miller was married to Miss Ethel Beekman Rawles, granddaughter of Brig. Gen. and Mrs. Jacob B. Rawles, U. S. A., at San Francisco, November 24, 1914.

Dr. Leonard Waterman, Norman, Neb., son of Lt. Col. J. C. Waterman, U. S. A., was married to Miss Elizabeth Louelle James, at her home in Calumet, Mich., September 16, 1914.

The only retirement in the Medical Corps during 1915 will be that of Col. L. Mervin Maus, chief surgeon of the Eastern Department. Col. Maus will be retired on May eighth.

Capt. Edgar W. Miller is reported to have been ordered for trial by a general court martial on the charges of missing roll call and of conduct unbecoming an officer and a gentleman.

Maj. Whitcomb Clement has been relieved from duty at the Medical Supply Depot, New York City, and after one month's leave of absence will report for duty at Fort McKinley, Me.

Capt. Glenn I. Jones, who recently returned from the Philippines, has been spending his leave of absence in New York. On his return to duty he will be stationed at Fort Wright, N. Y.

Miss Marjorie L. Craig, daughter of Captain and Mrs. Charles F. Craig, was married to Lieut. Ralph Hospital of the 13th U. S. Cavalry at Fort Leavenworth, Kan., November 28, 1914.

Lieut. Louis H. Bauer will proceed to Jackson Barracks, La., and report for duty with the 91st Company, Coast Artillery Corps, to accompany that organization to San Francisco, Cal.

Lieut. Frederick H. Hills, M. R. C., upon the departure of the 91st Company, Coast Artillery, from Jackson Barracks, La., will proceed to Fort Sam Houston, Tex., for temporary duty.

Capt. Felix R. Hill has been granted three months' leave upon his arrival in the United States from Vera Cruz. On the termination of his leave he will report for duty at Fort Meyer, Va.

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Lieut. Thomas W. Burnett has been relieved from further duty at Fort Rosecrans, Cal., and upon the expiration of his leave of absence will report to Madison Barracks, New York, for duty.

Brig. Gen. George M. Sternberg was re-elected President of the Association for the Prevention of Tuberculosis in the District of Columbia at its annual meeting on the twenty-third of November.

The Surgeon General, in a hearing before the House Naval Committee, urged provision for two hospital ships, one for the Atlantic and one for the Pacific Coast, and also an increase in the commissioned personnel of the Medical Department.

Maj. Robert U. Patterson, head of the Medical Service Bureau of the American Red Cross, described the work of the Red Cross to an audience of more than four hundred women at a recent meeting of the Woman's Guild of St. Paul's Church, Richmond, Va.

Lieut. Col. Charles E. Woodruff (ret.), in a eulogy of the Army delivered before the Society of Jurisprudence at the Academy of Medicine, New York City, asserted that there is a lower percentage of criminally inclined men among officers of the Army than even among clergymen.

Lieut. Thomas Madden Foley, M. R. C., whose request to be taken from the active list was granted July 1, has returned from the Philippines, and is taking a course in orthopedic surgery in Boston. On the completion of this course he will return to Washington to practice his specialty.

Col. James Edson Miller, inspector general and chief surgeon of the Board of Managers of the National Home for Disabled Volunteer Soldiers, was married to Miss Lucy Regina Berry, daughter of Judge and Mrs. Burton Berry, of New York City, November 14th. They will reside at the Cathedral Arms, 540 Ocean Avenue, Brooklyn.

The War Department has not found it possible to reimburse Maj. Perry L. Boyer on account of actual expenses amounting to $55.00 incurred for travel from London to Paris, and thence to Neufchatel and return to Paris in his capacity of military observer, despite the fact that the special transportation by automobile at an expense of $40.00 was necessary as the railroad was not in operation.

At the annual meeting of the Medical Reserve Corps, U. S. Army, New York State Division in New York City, the following officers were elected: President, Lieut. Reynold Webb Wilcox; vice-president, Lieut. Howard Fox; secretary, Lieut. Harold Hays; treasurer, Lieut. H. Sheridan Baketel, and councillors, Lieuts. Henry C. Coe, Herbert Lawson, Walter M. Brickner, S. Meredith Strong, Thomas Darlington and Frederick N. Wilson.

Maj. James M. Phalen will make one visit of instruction every three months until June 30, 1915, to the sanitary organization of the Organized Militia in Paris, Hillsboro, Rockford and Geneseo, Ill.; to St. Louis, West Plains, Joplin, Kansas City and St. Joseph, Mo.; to Sioux City, Clinton, Iowa City and Des Moines, Iowa; to Minneapolis, St. Paul and Mankato, Minn.; and Appleton, Viroqua and Milwaukee, Wis., and will report to station at end of tour.

Maj. Louis T. Hess will make a visit of instruction every three months until June 30, 1915, to the sanitary organization of the Organized Militia in Pittsburgh, Wilkes-Barre, Franklin, Allentown, Summit Hill, Scranton, Sunbury and Connellsville, Pa.; Newark, Trenton, Camden,

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Elizabeth, Paterson and Jersey City, N. J.; Baltimore, Md., Washington, D. C., Wilmington, Del., Richmond, Norfolk and Chase City, Va., and return to proper station at completion of duty.

Maj. M. A. W. Shockley will make one visit of instruction each three months until June 30, 1915, to the sanitary organization of the Organized Militia in Indianapolis, Frankfort, Bloomington and Angola, Ind.; Louisville, Beattyville and Carlington, Ky.; Grand Rapids, Detroit and Bay City, Mich.; Cincinnati, Youngstown, Toledo, Spencerville, Dayton, Cleveland and Zanesville, Ohio; and Piedmont and Bluefield, W. Va., and will return to his proper station at completion of tour.

The Army Appropriation Bill, which includes the support of the militia, amounts to $104,124,511.99 for the next fiscal year, and contains the following medical items: For pay of hospital corps, $1,067,736; with length of service pay, $203,241.96; for pay of officers and medical department, $1,508,600; with length of service pay of $210,043.68; 50 dental surgeons, $90,000; contract surgeons, $39,300; superintendent of nurse corps, $18,000; female nurses, $105,420; pay hospital matrons, $4,800; construction and repair of hospitals, $380,000; quarters for hospital stewards, $17,000; medical and hospital supplies for medical department, $750,000; medical museum library, $5,000; library of Surgeon General's office, $10,000; care of insane Philippine soldiers, $15,000; care of insane Porto Ricans, $300.

NAVY

Surg. C. St. J. Butler has been ordered to the Naval Medical School.

Surg. A. Farenholt has been transferred from the *St. Louis* to the *Oregon*.

Asst. Surg. C. C. Wood has been transferred from the *Nashville* to the *Virginia*.

Asst. Surg. R. L. Crawford has been transferred from the *Virginia* to the *Nashville*.

Asst. Surg. T. R. Healey, M. R. C., has been commissioned as such from November 12, 1914.

P. A. Surg. W. M. Kerr has been detached from the *Rainbow* and ordered to the *Chattanooga*.

Asst. Surg. J. N. Bassin has been detached from the Receiving Ship at Norfolk and ordered home.

P. A. Surg. L. L. Sheldon has been transferred from the *Solace* to the Naval Medical School.

P. A. Surg. T. Harlan has been detached from the Marine Brigade and ordered to the *Neptune*.

The resignation of Asst. Surg. C. F. Charlton has been accepted, to take effect January 16, 1915.

P. A. Surg. M. C. Baker has been detached from the *Chattanooga* and ordered home to await orders.

P. A. Surg. B. H. Dorsey has been detached from the *Connecticut* and ordered to the Atlantic Reserve Fleet.

P. A. Surg. H. L. Kelley has been detached from the Advance Base Maneuvers, Atlantic Fleet, and ordered to the *Olympia*.

P. A. Surg. P. E. Garrison has been detached from the Naval Medical School at Washington, D. C., and ordered to the *Solace*.

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A. Surg. W. L. Haworth has been detached from the Marine Expeditionary Force, Atlantic Fleet, and ordered to the *Prometheus*.

A. Surg. H. V. Cornett has been detached from the *Hancock* and ordered to the Asiatic Station by the Army Transport, January 5, 1915.

P. A. Surg. F. X. Koltes has been detached from the Advance Base Maneuvers, Atlantic Fleet, and ordered to the Atlantic Reserve Fleet.

P. A. Surg. C. E. Strite has been transferred from the Marine Detachment, Pensacola, Fla., to the Navy Aeronautic Station, at the same place.

P. A. Surg. J. N. Pollard has been detached from the advance base maneuvers, Atlantic Fleet, and ordered to temporary duty with the Atlantic Reserve Fleet.

P. A. Surg. W. Chambers has been detached from the Marine Expeditionary Force, Atlantic Fleet, and ordered to the Asiatic Station by the Army Transport of January 5, 1915.

Surg. D. N. Carpenter has been detached from the Advance Base Brigade, Atlantic Fleet, and assigned to temporary duty at the Bureau of Medicine and Surgery, Washington, D. C.

PUBLIC HEALTH SERVICE

Asst. Surg. J. G. Wilson has been assigned temporary duty at Cincinnati, Ohio.

Surg. A. M. Stimson has been reassigned to duty at the Hygienic Laboratory.

Surg. L. L. Lumsden has been reassigned to duty at the Hygienic Laboratory.

P. A. Surg. B. H. Earle has been reassigned to duty in charge of service operations at Port Townsend, Wash.

P. A. Surg. E. A. Sweet has been ordered to make a sanitary survey of the steel industry at Johnstown, Pa.

Act. Asst. Surg. C. A. Bailey has been ordered to St. Johns, N. B., for the medical examination of aliens during the winter months.

En route to his station, P. A. Surg. W. H. Frost will stop in Washington, D. C., for conference on stream pollution investigation.

P. A. Surg. C. E. Waller was detailed to assist P. A. Surg. E. A. Sweet in making a sanitary survey of the steel industry of Johnstown, Pa.

Asst. Surg. T. E. Hughes has been given temporary charge of the Mobile Quarantine Station during the absence of the medical officer in charge.

Surg. John McMullen has been directed to proceed to Louisville, Ky., for conference with state health authorities relative to the trachoma situation.

Asst. Surg. W. E. Glanville has been relieved from duty on the Revenue Cutter *Bear* and assigned to temporary duty at the Angel Island Quarantine Station.

Asst. Surg. F. M. Faget has been relieved from duty at the New Orleans Quarantine Station and ordered to New Orleans for duty in plague eradicative measures.

Asst. Surg. A. R. Sweeney has been relieved from duty at the Immigration Station at Ellis Island, N. Y., and assigned to duty at the New Orleans Quarantine Station.

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Asst. Surg. T. C. Galloway, Jr., has been relieved from duty on the Revenue Cutter *Unalga* and ordered to the Revenue Cutter *McCulloch* for duty, with station at San Francisco.

P. A. Surg. F. C. Smith, at the request of the Southwest Medical and Surgical Association, was detailed to present a paper on tuberculosis at its meeting, held at El Paso, Tex., on December 10th.

Act. Asst. Surgs. F. S. Beale, C. E. McKinnie and H. E. Whillans have been ordered to Seattle, Wash., for instruction in the procedure to be followed in the medical examination of arriving aliens.

P. A. Surg. R. M. Grimm, at the request of the Sanitary Committee of Princeton University, Princeton, N. J., was sent to that city for conference and inquiry into the causes of an outbreak of typhoid fever.

Surg. John McMullen was sent to confer with the authorities of Jefferson County, Ky., regarding the opening of a temporary trachoma hospital by them and to assume general supervision of its opening and conduct.

Surg. J. C. Perry has been directed, on request of the Efficiency Division of the Civil Service Commission of Chicago, Ill., to proceed to that city for the purpose of conducting an investigation of sanitary organization and administration.

At the request of the Governor of California, Surg. D. H. Currie is to act as Secretary of the State Board of Health for one year, beginning December 20, 1914. For this reason Surg. Currie has been granted one year's leave of absence without pay.

Surg. J. W. Shereschewsky was directed, at the request of the Public Health Committee of the City Club of Chicago, to attend the conference on infant mortality, held in that city, December 10th, for the purpose of delivering an address on that subject.

Asst. Surg. Gen. J. W. Trask and Surg. J. F. Anderson were detailed to attend the meeting of the American Public Health Association, held in Jacksonville, Fla., November 30 to December 4, 1914. P. A. Surg. W. H. Frost was also detailed to attend the same meeting.

Professor E. B. Phelps was directed to address the Woman's National Waterways and Harbor Commission at a meeting held at the New Willard Hotel, Washington, D. C. The subject upon which Professor Phelps spoke was, "The Pollution of Streams, from a Sanitary Aspect."

Asst. Surg. Ora H. Cox has been relieved from duty at the Quarantine Station at Marcus Hook, Pa., and ordered to Arundel Cove, So. Baltimore, Md., to report to the commanding officer of the Revenue Cutter *Androscoggin* for duty in relief crews of vessels engaged in deep sea fisheries off the New England coast.

Surg. L. L. Lumsden has been ordered to visit Wilmington, N. C., and such other communities in that state as may be necessary, to make inspections of methods of sanitation and inquiry as to results following the adoption of these methods. Like inspections and observations are to be made in the state of Virginia, if found necessary.

NATIONAL GUARD

The members of the National Guard of South Dakota have been inoculated against typhoid fever.

Capt. George W. Twomey, M. C., Ind. N. G., assigned Third Infantry, has gone to Washington to take the course at the Army Medical School.

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Inspection and instruction of hospital corps detachments of the Alabama National Guard were made during December by Sergeant R. J. Pahnke, M. C., U. S. A.

Capt. John Herbert Claiborne, of New York City, has been elected surgeon of the veteran corps of the artillery battalion, vice Dr. Timothy Matlack Cheeseman.

Lieut. R. M. Young, M. C., Pa. N. G., delivered the first of a series of lectures to the local Field Hospital Company, December 7th, on "Physiology and Anatomy."

Maj. William J. Ashenfelter M. C., Pa. N. G., Pottstown, for eight years surgeon of the First Brigade, has, on his own request, been retired from active duty.

Field Hospital No. 2, Pa. N. G., was mustered into the Service December 9th, at Tacony, Philadelphia. Maj. Elmer E. Keiser, M. C., is in command of the Company.

Lieut. Paul Guthrie Moore, M. C., Ohio N. G., assigned Fifth Infantry, was married to Miss Henrietta Louise Mallory, of Sarnia, Ont., recently. They will reside in Cleveland.

The stationary hospital, to which the Windsor (Ontario) Army Medical Corps is attached, left the mobilization camp at Salisbury plain for the seat of war in Belgium, November.

Lieut. Charles F. Pancoast, M. C., Pa. N. G., assigned Third Infantry, of Camden, N. J., and Philadelphia, sailed from New York, December 8th, for service in military hospitals in Vienna.

Lieut. Theodore J. Hazlett, M. C., Pa. N. G., assigned Fourteenth Infantry, has sailed for Europe as an assistant surgeon of the Third Unit for Service in Russia of the American Red Cross.

Dr. John Kimbrough, Jr., Mobile, Ala., has been commissioned First Lieutenant in the Medical Corps, Alabama National Guard, and assigned to duty with the First Sanitary Company at Mobile.

Capt. F. W. Sears, commanding the First Ambulance Company, N. Y. N. G., read a paper before the Binghamton Academy of Medicine on "The Relationship of the Medical Profession to Military Life."

A correspondence course of instruction is being given to the medical officers of the National Guard of Alabama this month by Maj. Henry Page, M. C., U. S. A. Study at stated periods each week is required of the medical officers.

The third annual meeting and beefsteak dinner of the Veteran Corps, Seventh Infantry, Ill. N. G., was held at the Great Northern Hotel, Chicago, December 19th. Capt. George W. Mahoney was elected vice-commander and Capt. Frank P. St. Clair, surgeon.

Maj. Patrick F. Butler, M. C., Mass. N. G., assigned Ninth Infantry, has retired. Maj. Butler was originally commissioned as first lieutenant and assistant surgeon, assigned Ninth Infantry, April 6, 1904; promoted to Captain and Assistant Surgeon on May 8, 1905, and was made Major in the Medical Corps June 7, 1910.

Lieut. J. D. Spelman, M. C., Ohio N. G., has proposed an amendment to the by-laws of the University Medical Society providing that graduates of medical colleges outside of the Ohio-Miami later than 1910 may be admitted to membership. The amendment was left in the hands of a committee of which Lieut. Spelman was chairman. At the same meeting Lieut. Spelman read a paper on "Military Medicine."

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Col. John T. Fotheringham, Toronto, who has been placed in charge of the Medical Corps which goes abroad with the second Canadian contingent, delivered an address before the Medical Association of the University of Toronto, November 12, on "Medical Service in a Modern Army." In this address he sketched the duties of the Army Medical Corps from the time it takes charge of a wounded man in the trenches until the patient is transferred to the home land or to a base or general hospital.

A meeting of the Association of Military Surgeons of Maryland was held at the Hotel Rennert, Baltimore, December 11th. At this meeting Maj. J. Harry Ullrich, M. C., read a paper on "The Physical Efficiency of the Enlisted Men," and Capt. H. E. Asbury, of Field Hospital No. 1, deplored the lack of medical officers. At a dinner given in the evening the ways and means of increasing the efficiency of the medical department were freely discussed. Capt. G. Milton Linthicum acted as toastmaster.

The annual inspection of hospital corps detachments and of Field Hospital No. 1, National Guard of Pennsylvania, by officers of the Medical Corps, U. S. Army, will be made as follows: First Infantry, Philadelphia, January 13th; Second Infantry, Philadelphia, January 12th; Third Infantry, Philadelphia, January 11th; Fourth Infantry, Allentown, January 15th; Sixth Infantry, Philadelphia, January 14th; Eighth Infantry, Summit Hill, January 16th; Ninth Infantry, Wilkes-Barre, January 19th; Tenth Infantry, Connellsville, January 28th; Thirteenth Infantry, Scranton, January 18th; Fourteenth Infantry, Pittsburgh, January 27th; Sixteenth Infantry, Bradford, January 21st; Eighteenth Infantry, Pittsburgh, January 22nd; First Cavalry, New Castle, January 26th, and Field Hospital No. 1, Pittsburgh, January 25th.

A correspondence course of instruction for officers of the medical department of the National Guard of Pennsylvania is announced by the Adjutant General. The course will be carried on along the same lines as last year and will be in charge of a board consisting of Major H. A. Arnold, chairman, and Majors Henry H. Doan, Fred O. Waage, and Cameron Shultz. The studies include Definitions and General Principles, School of the Soldier, School of the Detachment, Litter Drill, Methods of Removing without Litter, Ambulance and Tent Drill and Ceremonies. On examination those who secure 90 per cent or more will be exempt from examinations for five years; those who receive 85 per cent to 89 per cent will be exempt for four years; those whose grade is 80 per cent to 84 per cent will be exempt for three years, and those who make 75 to 79 per cent will be exempt for two years. Those who fail to make 70 per cent on examination will be required to appear for examination the next year.

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General News

Consolidation of Two Journals.—*The Dietetic and Hygienic Gazette,* which is just completing the thirtieth year of its existence, has been purchased by The Critic & Guide Company, and beginning with January, 1915, will be consolidated with *The Critic and Guide,* and the combined journals will be under the editorship of Dr. William J. Robinson. The offices of publication are at 12 Mt. Morris Park, W., New York City.

New Medical Directory.—The material for the fourth edition of the American Medical Directory is now being revised. A thorough revision of the entire book is being made. Many new features are being added with the object of making the book the most complete medical register ever issued, and one that will be of practical value to all medical men. The aim is to make it an official, reliable guide, published by the organized profession itself concerning those in the practice of medicine.

Report on the Friedmann Treatment for Tuberculosis.—Hygienic Laboratory Bulletin No. 99 of the U. S. Public Health Service is devoted to a report of the board appointed for the investigation of the Friedmann treatment for tuberculosis in which Surgs. John F. Anderson and Arthur M. Stimson give in detail their investigations from which they draw the conclusions that the claim of Dr. Friedmann to have originated a specific cure for tuberculosis is not substantiated and his claim that the inoculation of persons and animals with his organism is without harmful possibilities is disproved. The investigators find that the preparation used by Dr. Friedmann is not devoid of dangerous properties of itself and is still less so when injected into tuberculous subjects; that the favorable influencing of tuberculous processes by his methods is not the rule and finally that the phenomenon of abscess formation has not been avoided by Dr. Friedmann's method.

The Height Standard and Recruiting in England.—Some pressure is being brought to bear to have the regulation requirements of 5 feet 3 inches in height and 31 inches chest measurement reduced for the English army. In the new bodies of troops raised for special service precise measurements have not been insisted on, any man physically fit being accepted and the age limit being extended to 38 years.

Shortage of Chloroform in France.—A recent issue of *The Lancet* called attention to the shortage of chloroform in the French war hospitals. Still more recently Col. F. N. Maude, C. B., and Vice-Admiral D. M. Riddell, have published a joint letter affirming the shortage and asking for donations to a fund to enable an emergency anæsthetic center to be established immediately so that from it anæsthetics can be dispatched to hospitals in need.

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Antiscorbutic Food for British Soldiers and Sailors.—A Vegetable Products Committee with Lord Charles Beresford as president, has been formed in England for the purpose of supplying the army camps. stations, warships and hospitals with antiscorbutic food. Two thousand cases of fresh fruit, preserves and vegetables have already been dispatched to the North Sea.

Victoria Cross to British Surgeon.—In the first list of nine officers and non-commissioned officers to whom the Victoria Cross was granted for conspicuous bravery while serving with the Expeditionary Force appears the name of Capt. Harry Sherwood Ranken, R. A. M. C., who died at Braisne on September 25 from wounds received in action. Capt. Ranken was awarded the Victoria Cross for "tending wounded in the trenches under rifle and shrapnel fire at Hautvesnes on September 19 and September 20 and continuing to attend the wounded after his thigh and leg had been shattered.

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Obituaries

Brigadier General Peter Joseph Augustine Cleary, U. S. A., retired, died at his home in Chattanooga, Tenn., November 9, 1914, from heart disease, aged 75.

General Cleary was born in Malta, November 7, 1839, and his earlier years were passed in Gallway, Ireland. His preliminary education was received at Queen's College, Dublin, and he was graduated from the Royal College of Surgeons, England, as a licentiate in 1860. In the same year he sailed for America, where he practiced until 1862, when he entered the volunteer service as Assistant Surgeon in October. He became a Surgeon, U. S. V., in 1863, and was brevetted Lieutenant Colonel, August 9, 1865. During the latter part of the war he served as medical director of the Artillery Reserve of the Army of the Cumberland and was honorably mustered out August 10, 1865. After the war he practiced in medicine in Chattanooga, Tenn., for a little more than two years, and then re-entered the Army as Assistant Surgeon, October 9, 1867. On December 26, 1867, he was promoted to Captain and Assistant Surgeon; on January 30, 1883, he was made Major and Surgeon; on November 15, 1897, he was made Lieutenant Colonel and Deputy Surgeon General; and on February 4, 1901, Colonel and Assistant Surgeon General.

On August 6, 1903, he was retired at his own request after more than thirty years' service, and on account of his Civil War record was retired as Brigadier General. During General Cleary's long service he had participated in the Civil War, the Spanish-American War and in many campaigns against Indians on the western plains. After his retirement General Cleary returned to his old home in Chattanooga.

He was buried with full military honors in the National Cemetery near Chattanooga.

Assistant Surgeon Luther Walter Jenkins, U. S. P. H. S., was drowned in line of duty in Alaska, October 10, 1914, aged 33.

Dr. Jenkins was born in Paris, Ill., in 1881. His collegiate education was received at the University of Chicago, from which he received the degree of B. Sc. He entered Rush Medical College, Chicago, in 1907, and was graduated in 1911. After a short residence in Portland, Ore., he entered the United States Public Health Service with station at the Angel Island, Cal., Immigration Station. He later served at Seattle and then was assigned to duty on the U. S. Revenue Cutter *Manning*. While in this service and off Cape Sariches, Unalga Pass, Alaska, a message was received from the lighthouse that an employee was ill. Accordingly Surgeon Jenkins took a cutter and went ashore. On his return, bringing the sick man to the ship, the boat was swamped in a heavy sea and Surgeon Jenkins, the crew of the boat and the sick man were drowned.

Dr. Jenkins was a Fellow of the American Medical Association.

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Captain Edward Hodges, M. C., N. Y. N. G., an active member of the Association, died at his home in Brooklyn, October 30, 1914, from pneumonia, aged 44.

Captain Hodges was born in Edgewater, Bridgeman County, New York, January 16, 1870, the son of Edward and Alicia Ellen Mayne Hodges. His preliminary education was received in the public schools, after which he spent six years in the Croton Military Institute, Croton-on-Hudson, N. Y.

Captain Edward Hodges, N. Y. N. G.

His medical course was taken at Long Island College Hospital, Brooklyn, N. Y., from which he was graduated in 1895, and he afterward served as assistant to the professor of orthopedic surgery in his Alma Mater. His hospital service included an interneship at St. John's Hospital, Brooklyn, and later he was visiting surgeon to the House of St. Giles, The Cripple, The Bushwick, Swedish and Samaritan and Williamsburg hospitals. He was a member for many years of the American Medical Association, the Medical Society of the State of New York and King's County Medical Society. He also had served as president of the Long Island Medical Society.

His military career began in 1888 as a private in Company K, 23d Infantry, N. Y. N. G., in which he served until 1894. He returned to the regiment as Captain and Assistant Surgeon in April, 1906, and later was elected Captain of Company M. In the Spanish-American War he served as Captain and Assistant Surgeon, U. S. V., being commissioned as such October 6, 1898. He served in the Porto Rico campaign with

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the 47th Infantry, U. S. V., until March, 1899. Since that time he practiced in Brooklyn, specializing in diseases of the stomach and intestines. He is survived by his widow.

Lieutenant Colonel Clinton Wagner, U. S. V., for many years a practitioner of New York City, died in Geneva, Switzerland, November 25, 1914, aged 77.

Colonel Wagner was born in Baltimore, Md., received his preliminary education at St. James College, Hagerstown, Md., and took his medical course in the medical department of the University of Maryland, Baltimore, from which he was graduated in 1859. In the same year he entered the United States Army as Lieutenant and Assistant Surgeon. On the outbreak of the Civil War he remained loyal to the Union and was rapidly promoted, finally becoming Surgeon-in-Chief of the Second Division, Fifth Army Corps, Army of the Potomac, with the rank of lieutenant colonel. During his term of service Dr. Wagner established numerous field hospitals and organized the first floating hospital on western waters. At the close of the war Colonel Wagner retired from the Army and after two years of special study abroad returned to New York and specialized in laryngology. He established the Metropolitan Throat Hospital and Dispensary, and in 1882 was one of the founders of the New York Post-Graduate School and Hospital, and was its first professor of Rhinology and Laryngology. In 1873 Dr. Wagner was instrumental in the foundation of the New York Laryngological Society, the first society of its kind in the world. Five years later he assisted in the organization of the American Laryngological Association, which became in 1885 the Section in Laryngology of the New York Academy of Medicine. Dr. Wagner retired from active practice several years ago and after that time lived in Colorado, California and abroad.

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Original Articles

Authors alone are responsible for the opinions expressed in their contributions

AN AMBULANCE COMPANY

In Garrison, on the March, in Camp, in the Field; With an Analysis of its Equipment

BY LOUIS L. HOPWOOD, CAPTAIN, M. C., U. S. A., COMMANDING AMBULANCE COMPANY NO. 2.

THE modern ambulance company is a product of evolution. Much has been done as regards its organization, personnel, equipment and function. Much yet remains for discussion, trying out, and final decision.

The object of the fighting arm of an army is success, its function is to win battles; the object of the various staff corps is the same, their functions are auxiliary to that of the combatant force. All have a common purpose; the degree of success attained will depend upon the skill and thoroughness with which each accomplishes its special task.

Such being true, it becomes the duty of the Medical Department to make sure that its activities rest upon the solid foundation of experience, supplemented, where necessary, by logical reasoning resulting from its own experience and that of others. Only by such means can the problems of supply, sanitation, transportation and relief be solved. Loyal and intelligent cooperation upon the part of each and every member of the corps alone can insure success.

To that end the experience and opinions derived from more than three years' service with field hospitals and ambulance companies are here set forth.

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AMBULANCE COMPANY IN GARRISON.

An ambulance company like any organization has a dual function, that of sustaining itself, and of performing the duty for which it was created. Inquiry may first be made into the unit at home in garrison. Let us examine its matériel, personnel, administration and training.

Barracks.—The barracks need no special mention, the requisites are the same, be the organization one of a staff corps or of the line. All should be well built, ventilated, heated and lighted, with ample facilities for bathing, messing and recreation. They must be clean and rendered as attractive as possible, both within and without, that the soldier may look upon his particular barracks as his home and learn to take pride in its upkeep and in the organization of which he forms a part. An *esprit* once established is priceless; it will spell success.

The Stables.—The stables are too often of the type classed as "temporary," and are veritable makeshifts. A company assigned "permanent" stables, is fortunate indeed, for if these are not exactly suitable, money to render them so will generally be forthcoming. This is not true concerning "temporary" buildings, but energetic and persistent efforts supplemented by the co-operation of a friendly quartermaster will often work wonders.

Stables should be well built and well drained, commodious, light, airy and capable of being kept scrupulously clean. If possible they should provide under one roof ample facilities for storage of hay and grain, a room for horse equipment, ambulance and wagon accessories, a sufficient number of large wholesome stalls for the animals, with ample space in their rear for parking the ambulances and wagons. The harness should be hung upon pegs at the heel posts, that for each animal at his own post. There should be a large well-drained wash rack for cleaning vehicles and a stall similarly arranged for washing animals.

In addition there should be separate buildings suitably located and built for the shops of the horseshoer, saddler and wheelwright, with one as barracks for the stable force. There should also be as large a corral as practicable, with a watering trough and picket line within its inclosure. The picket line should be fully 25x200 feet, well drained and surfaced with crushed rock if possible.

The storerooms are best located in or near the barracks, should

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be easy of access, clean, dry, and should afford protection from fire and theft.

Experience has shown that it is convenient to keep the field equipment separate from all other classes of property. This can easily be arranged according to wagon loads, the articles listed, and a typewritten copy suspended over the proper stores. So arranged the wagons can be readily and poperly loaded. As far as possible supplies should be packed in the regular medical department unit boxes, with contents and wagon number stenciled upon the box. That part of the dressing station carried by the pack mules, should be packed in similar manner and all parts of the pack saddle marked.

In this connection attention may be called to the provisions of Par. 295 A. R., modified by C. A. R. No. 1, 1914, requiring the organization mark and individual number upon all articles of personal equipment. The same system is useful in identifying the saddles, bridles and other articles of the mounted man. Blankets, overcoats, slickers, sheets, all are marked. In short, marking everything possible will greatly facilitate not only the handling of property but all matters of administration.

The usual garrison supplies and stores should be made secure in a separate room, each class arranged and marked. A place will be needed for storage of the clothing and effects of men sick or absent.

According to "Tables of Organization, 1914," the personnel of an ambulance company at peace strength consists of 2 sergeants first class, 7 sergeants and 50 privates first class and privates, an increase of 5 privates over the allowance given in the Manual for the Medical Department for 1911. The quota at war strength increases the privates first class and privates to 70. It is to be regretted that to date Congress has not authorized the extra grades and pay asked for in the Hospital Corps Reorganization Bill recently introduced. Its effect if passed will be far-reaching and of incalculable benefit to the Corps at large and to ambulance companies in particular. In so far as field units are concerned the grades are horseshoer, saddler, farrier and artificer. Under existing conditions it is extremely difficult to secure and retain experts in the grades mentioned, yet their services and that of a wheelwright are indispensable in efficient administration.

Experience has shown that it is necessary for a medical department unit to be as nearly self-sustaining as possible, certainly as much so as a troop of cavalry or a battery of field artillery.

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Bearing in mind the dual function of an ambulance company it will be readily seen that administration has to deal with matters of self-sustentation, on the one hand, and problems of instruction and drill on the other, with maintenance of order and discipline upon both.

Perhaps methods relating to the former may be most comprehensibly yet succinctly set forth by liberal quotations from the standing orders of a company:

"The non-commissioned officer in charge of a squad will be quartered in the same room as his squad. He will be responsible for the police of his squad room, and for the public property therein. He will be responsible for the cleanliness and soldierly bearing and appearance of his men and will keep himself informed regarding all matters concerning them as soldiers. He will be responsible for the execution of clothing and equipment orders. He will make an inspection of his squad before each formation, noting carefully the condition of clothing and equipment. He will see that all clothing and equipment of all men from his squad placed in confinement, absent without leave, or sick in the hospital, is immediately checked up and turned over to the property sergeant for safe keeping. He will also be held responsible for all articles of government property, including clothing, in the hands of his men, seeing that they are properly marked; equipment will be marked under the supervision of the property sergeant. After each muster all property, including clothing, will be verified by a company officer. Additional checking will be made by the non-commissioned officer in charge of the squad on or about the 15th of each month; discrepancies will be reported to the organization commander and will be charged on the payrolls.

"The non-commissioned officer in charge of quarters will be detailed from roster kept by the senior sergeant. He will remain on duty from 6:00 p. m. to 6:00 a. m. He will report all cases of sudden sickness, disorder, or other emergency to the senior sergeant, if present, but will act independently in cases where the circumstances warrant it. He will immediately confine in the guardhouse anybody found drunk in quarters. He will be held responsible for the strict compliance of this order. He will cause all men reporting off pass to register on departure and return and will verify or cause to be verified, the time of registering. He will detain men reporting not neatly dressed, whether in regulation uniform or in civilian clothing. It shall be his

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duty, when a man is tried by summary court, to conduct the man (if not in confinement) and the witnesses to the Summary Court.

"The senior sergeant, under the direction of the organization commander, will be in immediate charge, and have general supervision of all routine matters. He will have charge of the records, and will be responsible for the accurate and timely preparation of the same. Information regarding official papers will be given only to those having authority to know same.

"The non-commissioned officer on duty as property sergeant will have charge of, and be responsible for, all public and private property pertaining to the organization. He will have charge of, and be responsible for, the preparation of records and papers, including clothing and forage requisitions. He will take receipts or give credit for all property issued or turned in, noting same in property book, which will be ready for inspection at all times.

"The non-commissioned officer in charge of stables will be under the non-commissioned officer in charge of transportation. He will have immediate charge of the stables and animals and equipment placed under his care. He will prepare a daily bulletin showing the status of all public animals. He will not permit the introduction of intoxicating liquors in or about the stables, or in the stable mess quarters. He will report any case of drunkenness among the men of his detail, and will immediately confine the man or men in the guardhouse. He will be responsible for the proper discipline of the men of his detail and the policing of the stables to which he is assigned. He will be responsible for the record of any public animals on sick report. He will report any misuse or abuse of any public animals of the organization. He will not permit smoking in the stables. He will not permit the stable detail or men on mounted pass to leave the stables in improper uniform. He will be responsible that at least one man is always on duty at the stables. He will be responsible for the procuring and issuing of forage. He will keep an accurate account of the receipts and issues of all forage. He will enforce all orders covering men on mounted pass. He will see that no animal leaves the stables except on competent authority.

"The non-commissioned officer detailed as mess sergeant will be in charge of the kitchen and mess hall and will be held responsible for the discipline of the men on duty therein. He will be responsible for the preparation and serving of all meals, and for the drawing and purchasing of commissaries. He will keep the mess statement ready for inspection at all times. He will

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receipt for and be responsible for all public property in his department."

The Mess.—In connection with the mess it may be advisable to refer to its internal economy, over which it is impossible to exercise too close a supervision.

For an organization the size of an ambulance company satisfactory service requires a mess sergeant, two cooks, one dining-room orderly and two kitchen police.

As to the method of conducting the mess and the system of accounts used, a word may be given. The day previous to serving, the mess sergeant prepares the menu and submits it to the company commander for approval. The necessary supplies for each of the three meals are then collected. The cook estimates for, and draws by weight or measure all articles needed from the storeroom, entering same in a book, which he turns in to the mess sergeant daily. The latter calculates the money value of each article, sets down the price and totals the amount for the meal, making a grand total for the day. He then makes entries in his mess statement ruled in columns as follows: Commissary, Post Exchange, Etc., Total Bills, Stock Value, Organization Strength, Income, Expenditures, Daily Surplus, Daily Deficit, Total Surplus, Total Deficit. This mess statement with the cooks' statement and bills of articles purchased are submitted daily to the company commander. In this manner an accurate check is kept and the mess made to keep within its income. This is regulated by the company commander's check on the menus.

In addition to the assignments enumerated there are several special duty positions.

The Horseshoer.—If possible he should be a graduate of the School for Farriers and Horseshoers at Fort Riley, Kansas, at all events he should be an expert. Nothing cripples a mounted command more than poor shoeing. An ambulance company horseshoer has under his care eighty animals; each will require shoeing at least once a month. To insure this, as well as keep check upon the work of the shop a book is prepared. In this the animal's number, date of shoeing, number of shoes, and feet shod are entered. Emergency work is listed in like manner. This book is inspected and checked weekly by the organization commander.

The Farrier.—He, too, should be a graduate of the Fort Riley institution. The farrier keeps the sick book of public animals

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under the supervision of the stable sergeant. In this is entered the animal's number, the diagnosis, treatment, dates of going on and off sick report. This furnishes the sick record desired by an inspector in condemning unserviceable animals. His special duty is to make a daily inspection of all animals of the command, treat the ordinary cases and report the serious ones to the post veterinarian.

The Saddler.—This man keeps in repair sixty single sets of harness and halters, four pack saddles and fifteen horse equipments. Any needed repair work is reported to him and receives immediate attention. He makes frequent inspections of the entire leather goods equipment. Any weak part is strengthened or replaced.

The Wheelwright.—This grade is not authorized, but experience has shown it desirable, even necessary. An ambulance company has fifteen vehicles and four packs to keep in repair. An expert wheelwright will do this with no delay in awaiting the organization's turn at the post shop. The efficiency of the transportation train will be greatly enhanced. To him are reported all loose brakes, broken parts, bent axles, loose tires and anything needed to keep the vehicles in service.

The Artificer.—The services of such an artisan go far in the ever-present task of keeping equipment, stables and barracks in first-class shape The duties are obvious.

Having dealt with the matters of self-sustentation, a glance at those of instruction and drill will follow.

An ambulance company is divided into detachments. Thus: the bearer, pack, ambulance and wagon detachments. Each in time of peace is in charge of a non-commissioned officer. All the transportation is supervised by a sergeant first class, known as the non-commissioned officer in charge of transportation. His duties consists of the following:

"The non-commissioned officer in charge of transportation, under the officer in charge of transportation, will be responsible for the efficiency, property, equipment and all matters concerning transportation. He will have charge of all property pertaining to his department, and will check the same on or about the 15th of each month, rendering a written report to his organization commander. He will supervise the duties of all men assigned to duty with the transportation."

The ambulance detachment is further divided into three platoons of four vehicles each, each platoon being in charge of a

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non-commissioned officer known as platoon chief. "He inspects the ambulances, harness, animals' feet, grooming, feeding, watering, and all that pertains to his platoon. He will remain with and supervise the platoon while it is engaged in any duty whatsoever. He will, under the non-commissioned officer in charge of transportation, be responsible for the efficiency of the platoon, giving particular attention to the care and shoeing of animals, safeguarding, cleaning and preservation of equipment, and instruction of the men assigned to his platoon. He will make an inspection of the equipment of his platoon daily, before permitting the men to leave the stables, and report the result to the non-commissioned officer in charge of transportation. In drill he commands his platoon. It is his duty to have his command at all times ready for efficient service."

A glance at a monthly duty roster will afford an idea of company administration:

NON-COMMISSIONED OFFICERS.

1.	Sergeants first class	A.	Senior sergeant. General charge, charge of office, charge of dressing station.
2.	Sergeants first class	B.	General charge of transportation, charge of property, charge of wagon detachment.
3.	Sergeant	C.	Chief of first platoon ambulance detachment. Leader of first squad.
4.	Sergeant	D.	Chief of second platoon ambulance detachment. Leader of second squad.
5.	Sergeant	E.	Chief of third platoon ambulance detachment. Leader of third squad.
6.	Sergeant	F.	Chief of pack detachment. Leader of fourth squad.
7.	Sergeant	G.	Charge of bearer detachment. Leader of fifth squad.
8.	Sergeant	H.	Stable sergeant. Leader of stable squad.
9.	Sergeant	I.	Charge of mess.

PRIVATES FIRST CLASS AND PRIVATES.

1.	Office	A	2.	Mess	B, C, D, E, F
3.	Rear, lavatory, recreation room, barber	G	6.	Saddler	J
4.	Artificer	H	8.	Musicians	L, M
5.	Farrier	I	10.	Wheelwright	P
7.	General police and care of property	K			
9.	Stable police	N, O			

11. AMBULANCE DETACHMENT.

Drivers:

First Platoon.		Second Platoon.		Third Platoon.	
1	Q	5	U	9	Y
2	R	6	V	10	Z
3	S	7	W	11	AA
4	T	8	X	12	BB

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12. WAGON DETACHMENT.

1 .....CC 2 .....DD 3 .....EE

13. PACK DETACHMENT.

1 .....FF 3 .....HH
2 .....GG 4 II

14. BEARER DETACHMENT.

1 .....JJ 8 .....QQ
2 .....KK 9 .....RR
3 .....LL 10 .....SS
4 .....MM 11 .....TT
5 .....NN 12 .....UU
6 .....OO 13 VV
7 .....PP 14 .....WW

Supernumerary driver XX

The assignments indicated above are made monthly, for a like period, except the special duty details, and care is exercised that all members of the organization ultimately serve in the various positions. They are thus fitted for duty anywhere in the company.

A Provisional Manual for ambulance companies is in preparation. Until such regulations as it may contain are published, it is doubtful if any two organizations will follow the same course of instruction and drill. Each unit commander will seek to cover as best he may the many subjects necessary for efficiency and at the same time care properly for his transportation and equipment.

There are two classes of drill regulations,—one for ambulance companies dismounted, and one for an organization mounted. The former is the ordinary Hospital Corps Drill Regulations, now in process of revision; the latter is the typewritten set of regulations issued from the Surgeon General's Office, and based upon regulations of the Field Artillery and Signal Corps. In this, provisions are made for preliminary training by the detachments, and later of the company as a whole. Valuable data are given regarding the care of animals, harness, saddles and stables, and concerning driving, riding and packing.

The didactic instructions as prescribed in paragraphs 154 and 155 M. M. D., 1911, can be only approximately covered. The care of animals and their exercise, together with proper attention to the equipment, forbids compliance to the letter. No doubt the forthcoming manual will materially alter the requirements, and uniformity will ensue.

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The following schedule of instructions may be followed:

A. M.	MONDAY.	EXPLANATION.
7:30 to 10:00	March: all detachments.	Bearer detachment receives instruction in driving.
10:00 to 11:30	Care of animals: all detachments.	Harness and collars washed. Saddles, bridles and pack saddles cleaned. Ambulances parked. Animals groomed 1 hour, watered and tied in stalls for noon feeding.
A. M.	TUESDAY.	
7:30 to 11:00	1. Ambulance detachment: march and ambulance driving drill (Provisional Manual). 2. Wagon detachment: march with wagons loaded with field equipment. 3. Pack detachment: march and establish dressing station. 4. Bearer detachment: laying out camp and tent pitching.	Officer in charge of transportation, drills ambulance detachment. Each other detachment works under its N. C. O. The company commander divides his time from day to day between the detachments, superintending all.
11:00 to 12:30	Care of animals: all detachments except bearer.	Same as Monday. Bearers put away field equipment.
A. M.	WEDNESDAY.	
7:30 to 8:30	Litter drill, marching and manual of. Entire company.	Hospital and conical wall tent pitching substituted once monthly.
8:30 to 9:45	Practical first aid, bearer work, loaded litter and loading and unloading ambulance drill. Entire company.	Patients are designated. Bearer work under N. C. O. Diagnosis tag used. Work inspected and talked over by officers.
10:00 to 11:30	Care of animals: all detachments.	Same as Monday. Bearers grease ambulances.
A. M.	THURSDAY.	
7:30 to 10:30	1. Ambulance and bearer detachment: ambulance drill. 2. Pack detachment: march with pack, packing drill.	Bearers receive instruction in drill.
10:30 to 11:30	Care of animals: all detachments.	Same as Monday.
A. M.	FRIDAY.	
7:30 to 8:30	Hospital Corps drill. Entire company.	Shelter tent drill substituted once monthly.
8:30 to 10:00	1. Ambulance detachment: march. 2. Pack detachment: march with packs. 3. Bearer detachment: practical field work.	Field work consists of building incinerators, picket lines, rears, seepage pits, etc.

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A. M.	FRIDAY—Continued.	EXPLANATION.
10:00 to 11:30	Care of animals: all detachments except bearer.	Same as Monday. Bearers police about barracks.
P. M. 1:00 to 4:00	Preparation for inspection: all detachments.	Wash harness and horse equipment. Clean and grease ambulances. Use neatsfoot oil and harness dressing alternately once monthly.
A. M.	SATURDAY.	
8:30	Inspection: mounted or dismounted as ordered.	
9:00 to 10:00	March: all detachments.	Same as Monday.
10:00 to 11:30	Care of animals; all detachments.	Same as Monday.

NOTE.—Men not proficient and recruits will receive didactic instruction four hours weekly: Monday, Tuesday, Wednesday and Thursday from 1:00 to 2:00 p. m. Courses covered: Duties of a Soldier, Anatomy, Physiology, First Aid, Nursing in accordance with the provision of paragraph 168, course No. 1, M. M. D., 1911, to which may be added personal and camp hygiene and equitation.

A non-commissioned officers' class, for non-commissioned officers, and privates first class desiring promotion, will be organized as needed; same hours as recruit class. Mess and stable force excused from all drills and instruction. Since the personnel of each changes monthly the necessary instruction is obtained.

Special duty men excused from all drills except Wednesday and the first aid drill Friday.

Three-day practice march and encampment is made once monthly.

The musicians practice from 1 to 2 p. m. daily except Saturday.

It will be observed that the soldier's time is occupied from 7:30 until noon daily. The organization as a unit is at liberty in the afternoons. As a matter of fact, the special duty tasks, the recruit and non-commissioned officers' classes, and the various fatigue details, both company and post, consume most of the time until 4 o'clock daily.

The paper work of an ambulance company is to be minimized as much as possible. The absolutely necessary reports, returns and records are enumerated in Par. 160, M. M. D., 1911, as amended by existing orders.

Requisitions for medical property, unless emergency exists, are usually prepared once annually; for ordnance property semi-annually; for quartermaster property estimates are submitted to the post quartermaster quarterly. The medical and ordnance departments have prescribed allowances; the quartermaster corps has not, estimates being made for amounts thought necessary.

Experience has shown that in order to keep the wheeled trans-

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portation in first-class condition, in addition to the repairs constantly being made by the company wheelwright, it will be necessary to have the wagons painted once yearly and the ambulances once every two years. To accomplish this a special written request must be made to the post quartermaster in addition to the quarterly estimate.

AMBULANCE COMPANY ON THE MARCH.

Having inquired into the matériel, personnel, administration and training of an ambulance company in garrison, the next step is an investigation of "An ambulance company on the march." This subject divides itself into two parts: (1) Preparation. (2) The march.

The extent and character of the preparation necessary will depend upon conditions. If the organization is to accompany one of the line, such question as transportation of rations and forage, camp sites, fuel and water supply, duration of the day's march, etc., will not arise. Neither, in a measure, will the length of the journey nor the country to be traveled demand much consideration. In such a situation the essential points will be settled by the commander of the troops of the line, the ambulance company commander having merely to satisfy himself that his organization is ready for efficient service and to execute the orders given him. On the other hand, if the moving command is composed of medical department units and he the senior officer, the preparation will necessarily broaden. The latter situation will be treated, the points covered being actual experiences incident to a march of 330 miles made by a field hospital and ambulance company during the summer of 1913.

In planning such an extended march the first question to be considered was the route. This, when approved by the proper authority, would furnish the basis upon which estimates for funds could be made, arrangements for shipment of forage and subsistence stores entered into, the number and probable location of necessary camp sites, with the approximate cost of each, the length of each day's march and all that would pertain to the comfort and well being of the men and animals of the command.

In this instance the nature of the country to be traversed was unknown. Two routes were available: one eighty-seven miles, over a mountainous road with numerous steep grades, sharp turns and precipitous banks, with uncertain water supply and camp sites; the other one hundred and thirty miles, practically

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level, with frequent towns of supply, camp sites, and an abundance of good water.

The latter was chosen, distance and terrain were checked upon several maps, the approximate location of camp sites was determined, points for shipment of supplies were selected, and the whole matter was forwarded for approval by the Department Commander.

This done, the approved route of march was submitted to the Department Quartermaster for instruction regarding funds and supplies. The instructions were as follows:

(1) The Organization Quartermaster to submit an estimate for funds, secure allotments, a check book, a disbursing number, blank contracts, etc. (2) The Quartermaster, Presidio of San Francisco, to forage the command on the march, while encamped at Santa Cruz and en route to Monterey. He was to subsist it to Santa Cruz only. (3) The Quartermaster, Presidio of Monterey, to subsist the organization from its arrival at Santa Cruz until its return to its proper station at San Francisco.

In accordance with the above instructions the Organization Quartermaster made this estimate for funds, which, owing to the fact that, in this instance, parts of two fiscal years would enter, was in reality two estimates:

Fiscal Year 1912-13.		Fiscal Year 1913-14.	
Iucidental expenses	$75.00	Incidental expenses	$240.00
Barracks and quarters	85.00	Barracks and quarters	175.00
Army transportation	28.00	Army transportation	196.00
Water and sewers	20.00	Water and sewers	40.00
		Regular supplies	300.00

These estimates were approved and funds totaling $1,159 allotted. All moneys remaining upon completion of the march were to be invoiced to the proper officer of the Quartermaster Corps.

As "Incidental Expenses" such charges as telephone calls, blacksmith coal, etc., could be made. Under "Barracks and Quarters," rental of camp sites; "Army Transportation," repairs of wagons and ambulances; "Water and Sewers," water for the command. "Regular Supplies," as the term indicates, include fuel, lime, crude oil, etc.

In addition, ten transportation requests for railway tickets were secured. These were available for transferring cases of serious illness and sending discharged soldiers to a paying quartermaster.

The instructions of the Department Quartermaster regarding forage and subsistence permitted considerable latitude upon the part of the senior officer, who, being desirous of rendering the

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organization as independent and self-reliant as possible, as well as teaching the ambulance mules to haul heavily loaded ambulances, arranged as follows: Ten days' grain for 91 mules and 23 horses, 10,950 pounds, and three days' hay supply, 4,788 pounds, totaling 15,738 pounds, were distributed among the twelve ambulances of the Ambulance Company, the weight thus approximating that of an ambulance loaded to its full capacity with sick.

The wagons of the Field Hospital and Ambulance Company were weighted with the regular field equipments and the permanent camp tentage, no space being available for grain or long forage. The Quartermaster, Presidio of San Francisco, was requested to ship, on specified dates to each of two designated points, three days' supply of hay, and to furnish nineteen days' supply of grain and hay at Santa Cruz. Ten days' subsistence stores were purchased from the commissary; arrangements made with the field bakery to express the proper rations of field bread to designated points; the ration settlement was made with the Quartermaster and certificate secured.

A verbal contract was entered into with a local dealer to express hindquarters of fresh meat upon alternate days, thus assuring a good supply and always a hindquarter.

In this manner the questions of expense, forage and subsistence were disposed of, and with the exceptions of the points of supply, both organizations were absolutely independent and self-sustaining during the entire five weeks' march and encampment.

Besides the route, funds, forage and subsistence matters, the equipments of both the Field Hospital and Ambulance Company were overhauled and placed in first-class condition, the wheel transportation repaired and painted, animals newly shod, and harness and packs made good.

In addition to the regulation blanket roll and surplus kit, each man was to take in excess of what he wore, 1 olive drab shirt, 1 service blouse, 1 pair marching shoes, 3 suits underwear, 1 barrack bag and 1 blanket. The garrison equipment was stored and left under guard.

The day before departure the wagons and ambulances were made ready and loaded, reports and field return made out, descriptive lists, status cards, etc., of men sick in hospital prepared, and everything was put in order for an early start.

At 7:30 the next morning both organizations moved out in full field equipment, the combined strength being 5 officers, 17

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non-commissioned officers and 67 men. The order of march corresponded to that prescribed in the tentative drill regulations for the mobile units of the Medical Department. Beside each driver rode an orderly. The orderlies alternated with the men of the dismounted detachments, so that no one marched more than half the total distance for the day.

A few days' experience served to settle the question of lunch en route. It had been the intention to serve only two big meals daily, breakfast and supper, merely supplying sandwiches and hot coffee upon reaching camp, for the third. This proved insufficient and it soon became the settled policy to halt at 10:30 along the roadside and eat the extra sandwiches the mess sergeants had prepared. These were of generous proportions, always fresh, and certainly served to infuse new life into the command and promote cheerfulness and contentment.

Excepting the drivers and packers the entire personnel was subject to emergency and routine details, the latter being permanent and automatically operative immediately upon reaching the camp site of the day. Thus each company had a non-commissioned officer and four men to erect and strike the officers' tents; a similar detail to care for the tents used as rears; and another to erect, care for and strike the picket lines, the sergeants on the latter detail being the stable sergeants and responsible for the proper allotment of grain and hay, as well as maintaining order and quiet upon the line.

The mess sergeants, the cooks and the kitchen police erected and struck the kitchen, procured water, split wood, prepared the meals, and cared for the refuse. One man was regularly detailed to clean, fill and distribute lighted lanterns in the officers' tents, kitchen and rear.

Immediately after breakfast the officer acting as quartermaster for the organization, left the command and rode ahead to the next schedule camp to arrange for a site, water and fuel. This plan worked well, there was never any delay and good locations were always secured; the column was met by the officer or his orderly and conducted to its home for the night.

The cost of camp sites varied from one to fifteen dollars; water from one to two dollars; contracts were drawn and signed in all cases and payment made by check upon departure.

For guard duty over night an officer of the day, a sergeant of the guard and six men were detailed by roster daily. The sergeant of the guard posted the men every two hours, and himself made a tour of the camp at that time. Briefly, besides

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guarding property, the chief duty was along the picket lines. Each hour all halter chains were inspected and made secure; as soon as an animal became entangled or loose he was freed or caught and tied. If the guard could not do so alone the sergeant was awakened, and if need be, the officer of the day, who took such action as was deemed best. No animal was seriously injured and no delay was occasioned by strayed animals.

The usual service calls were used, First Call being at 4:45 a. m., Breakfast at 5:15 a. m., and March at 6:20 a. m.

The thirty minutes before breakfast were utilized in feeding animals, striking shelter tents and preparing blanket rolls. Immediately after breakfast the animals were watered and hitched and the packs made ready. The kitchen, officers' tents, picket lines and rears were struck and loaded. All available men were then turned out to police the camp and picket lines.

As to the conduct of the day's march; immediately after loading the last wagon "Attention" was sounded. The senior sergeants called for report; each detachment chief—bearer, pack, ambulance and wagon—reported. This when given to the senior officer carried with it the status of the personnel and the condition of the equipment.

The actual marching gait ordinarily averaged three miles for each fifty minutes, a rest of ten minutes each hour being allowed. This rate was the basis in calculating time of arrival in camp. It was found to be the best for the entire column, composed as it was of foot soldiers, mules with loaded packs, ambulances and wagons weighted with forage and equipment. The train was kept intact. A trifling misfortune only, permitted a vehicle to pull aside, its platoon chief remaining to bring it up.

The greatest source of delay was a weak bridge. One wagon and team weighed around six thousand pounds; to guard against misfortune only one at a time was allowed on each end of a span. At railroad or street car crossings an officer remained on guard until the column passed. This latter action prevented several serious accidents.

As a rule the animals were not watered until camp was reached. If a good opportunity presented itself and need was apparent, each mule was given a bucket of water. Even this action caused considerable delay. Once started, the one purpose in mind was to reach the end of the day's journey.

With a few exceptions, no difficulty was encountered by reason of steep grades. One such obstacle, known as the San Juan Hill, was especially trying. The average ascent for two miles

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is 7.7 per cent, with a quarter mile stretch of approximately 22.8 per cent. The descent presents a similar short, sharp decline, with a long one of three miles with 6.2 per cent declination.

Upon beginning the ascent all but the drivers dismounted, and securing stones or sticks of wood, marched beside the wheels. The column was carefully watched. Whenever an animal was seen breathing hard a halt was ordered and the sticks or stones placed behind the wheels. Such action brought the command to the summit in good condition.

The descent was more dangerous. Despite the ambulance brakes being in good repair they would not hold. Long sticks were placed against the wheels and the men pulling back on these reinforced the brakes. The descent was finally accomplished in safety. This incident is mentioned for two reasons: to show the grades that can be taken by ambulance companies and field hospitals when necessary, and to demonstrate the serious weakness of the ambulance brakes. Those on the wagons can be made secure by nailing pieces of planks to them and supplementing them by the chains; not so with the ambulances.

Immediately upon reaching the new camp site the senior officer would indicate locations for the picket lines, ambulances, wagons, men's shelter tents, officer's tents, kitchen and rears. The column would move in, the wheeled transportation form lines as directed, the various non-commissioned officers secure the men of their details and begin the duties previously outlined. The drivers would dismount, unhitch, clean the collars of their animals, groom, water, and then grease their vehicles, and soon what had been a bare field became an orderly camp.

Each day, after all had bathed and before any men had left camp, sick call was sounded and sore feet were dressed or treated. As the march progressed this complaint greatly diminished. During the afternoon the farrier would inspect all the animals, and any kicks or other injury received immediate attention. A beginning collar sore was at once treated, and this so successfully that none of any consequence developed.

At the same time the platoon chiefs, under the supervision of the non-commissioned officer in charge of transportation, inspected the feet of the animals, the harness and the vehicles of their platoons. Any loose shoes were reported to the horseshoer, who cared for them immediately. No mules went lame upon the trip.

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Harness needing repairs was taken to the saddler. Loose bolts, weak brakes, etc., were attended to by the wheelwright.

The services of these special duty men were excellent and their work contributed in no small degree to the success of the march. Yet, notwithstanding the character of the duty performed by such soldiers, they can be given only the pay of a private first class, that is, eighteen dollars per month, as against thirty-six dollars for the horseshoer and the wheelwright and twenty-four for the saddler and the farrier offered in other branches of the service. Naturally this produces discontent and sooner or later always leads to their loss because of discharge by purchase or failure to re-enlist.

It is earnestly hoped that higher authority will soon see its way clear to grant these four special duty grades to the Hospital Corps for the benefit of the mobile units, these grades to carry with them the pay and allowances of those in other divisions of the army.

AMBULANCE COMPANY IN PERMANENT CAMP

A permanent or semi-permanent camp naturally differs very considerably from the temporary or one night camp previously alluded to. In the former, time, ample space and facilities are ordinarily at hand; in the latter all are usually lacking. In a permanent camp an organization seeks to place itself amid conditions most favorable for its health, comfort, duties and recreations; in a temporary one the main thought is of rest and recuperation from the arduous labor of the day, together with the preparation for the march of the morrow.

In laying out and erecting a permanent camp consideration must be given to the space available, the contour of the land, its character, drainage, vegetation, surroundings, accessibility, its water and fuel supply and wind protection.

Field Service Regulations, 1914, page 177, fix the size and method of laying out the camps of the four ambulance companies of a division. Such a proportionate acreage is rarely available for a single organization in time of peace and in ordinary maneuvers.

The plan usually followed by the writer is a modification of the one prescribed and that of a battery of field artillery, with distances reduced. Below is given a diagram of a scheme used by an ambulance company during the summer of 1914.

It will be observed that the tents of the officers and men, together with the store tent, kitchen and mess, are on a line

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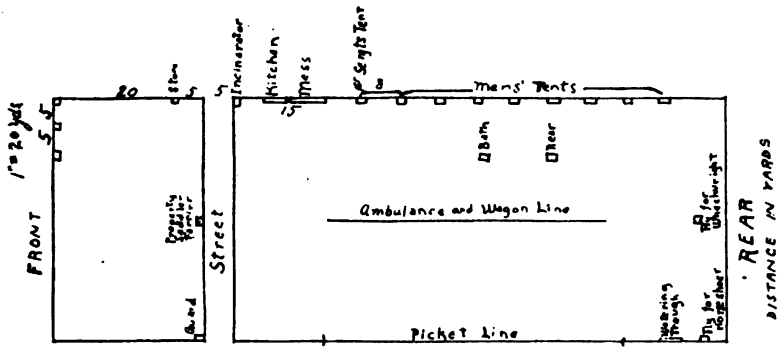
removed from the animals by forty yards, surely sufficient distance if the picket line is as thoroughly policed and burned as it should be.

A point attracting attention, no doubt, will be the relatively close proximity (ten yards) of the bath and rear to the line of men's tents. This violates all established rules upon the subject, yet not once during a five week summer camp did any unpleasant feature result from it.

The rear was the ordinary deep pit covered with a fly-tight box seat, the lids having pieces of wood behind them to make them fall shut automatically. Each morning the box was re-

Ambulance Company Camp.



NOTE.—The line of tents and the picket line may be interchanged according to the direction of the prevailing winds.

moved, a little straw and crude oil strewn about the pit and burned, and the box replaced. A urinal trough of tarred paper was used; this was replaced by another upon becoming incrusted with urine salts and the original burned. In this manner flies and odors were prevented, and the nearness of the toilet did away with any tendency toward soil pollution, something sure to occur if men are forced to go one hundred and fifty or two hundred yards to a sink, notwithstanding the placing of urine tubs in the company streets.

No nuisance was due to the proximity of the bath to the line of tents; a pit was dug four feet wide, twelve inches deep at one end and six inches deep at the other. This pit was the length of the screened inclosure, placed beneath the showers and faucets, and was filled with coarse stones. Over this was built a platform upon which the bather could stand. At the lower end of this seepage pit a hole was dug four feet in all dimen-

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sions, covered with boards and earth. This cared for the waste water, although the lack of porosity in the soil necessitated another nearby and tapping the former.

The bath and rear were enclosed by burlap.

The kitchen and "mess hall" abutted. The kitchen was twelve feet wide by the width of a hospital tent fly in length. It was screened, had a door for entrance at one end and an opening at the other through which the food was passed to the waiters in the "mess hall."

It contained the field range with alamo attachment, an improvised table, shelves for pots, pans and dishes, while in one corner was a pit three feet deep lined with a covered double-walled box having wet hay between the walls. This pit made a good ice box.

The incinerator was patterned after the one devised by Lieut. Colonel Straub at the San Antonio maneuver camp. It functioned perfectly and cared for the refuse of the camp excepting that of the picket line, which was hauled to a nearby field.

However, in this connection it may be said that the writer has cared for or seen burned all the manure from the lines of a field hospital and ambulance company by using a rock pit crematory in one instance and one of an English type in another.

The "Mess Hall," as stated above, was directly continuous with the screened kitchen. Meals, passed through a small opening, were served with the least possible exposure to flies and dirt, and with a minimum of handling by the waiters. The mess hall consisted of two sets of hospital tent uprights, ridges and flies, with two improvised tables fourteen feet long upon each side of a center aisle. These tables, as was everything else connected with the mess, were scrubbed daily. In lieu of the service mess equipment—meat can, tin cup, etc.—enameled ware bought from the company fund was used. The store tent was one of the two hospital tents in the ambulance company equipment. In it were kept the subsistence stores, and there slept the mess sergeant and two cooks. The other hospital tent was used for storage of property, the saddler's "shop," and for the farrier's kit. There slept the saddler, farrier and the property man. No property was removed from this tent without a memorandum being taken for it by the man in charge.

The two flies belonging to these tents were erected for the use of the wheelwright and horseshoer, as shown in the diagram.

The guard tent was one of the conical wall pattern belonging to the regular permanent camp equipment of the organization.

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Had the company possessed a full personnel this tent would have been needed for sleeping quarters, and an extra tent from the Quartermaster would have been necessary.

Water was piped into the camp—a great convenience indeed. Nothing was done to the picket line other than thoroughly to police it daily. Flies gave no trouble. Had they done so it would have been burned over. This is accomplished by scattering a thin layer of straw over the ground occupied, sprinkling it with crude oil and igniting it. Care must be exercised lest too hot a fire results and the rope line be burned.

No particular drainage was attempted, it being the dry season. Had rain been anticipated all tents, flies and the picket line must have been ditched.

To secure quick and accurate alignment of the ambulance and wagons upon the parking line, a shallow trench was dug in which the front wheels of all vehicles rested.

For purposes of administration each squad leader lived with his squad and was responsible for the behavior of his men, their appearance and the policing and airing of their tents. Each morning immediately after breakfast the entire company was turned out and the camp thoroughly cleaned and made orderly.

The officer of the day and a guard were detailed as outlined in the remarks upon "The March." The duties were similar.

The musicians sounded the customary calls. Instruction proceeded much as in garrison.

In camp, however, the men have practical experience in building and caring for incinerators, rears, picket lines, baths, etc. In addition they become expert in putting up the various kinds of tentage and learn to care for themselves in the field. Battle problems, first aid, establishing dressing stations and clearing the field of "dummy" wounded may be a valuable part in the training.

EQUIPMENT OF AN AMBULANCE COMPANY.

In undertaking a discussion and an analysis of "The Equipment of an Ambulance Company," extreme caution is necessary. It must always be borne in mind that the quantity, quality, pattern, and even the very nature of the article itself, as well as its disposition among the supplies of the various detachments of the organization, has resulted from much careful consideration of the object to be attained and the obstacles to be overcome. In addition, there has been required patient and per-

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sistent labor in testing, rejecting and trying anew. It has been by such travail that the equipment now prescribed has been determined upon; rejection or modification of any part should be made only after thoughtful inquiry, coupled with painstaking trials under actual service conditions.

It is along such lines that the subject will be treated in this article. The defects mentioned below have become manifest to the writer during an experience of over three years with an ambulance company, and with the character of the service covering every function likely to be demanded of such an organization short of actual battle conditions. Naturally, as the need of improvement was noted, the means to that end were considered, and the suggestions set forth have resulted.

In studying the subject, it seems better to view it from the point of availability on the battlefield rather than that of the total amount carried by the organization. Thus the bearer and dressing station detachments might readily be separated, both during and after a conflict, for an indefinite length of time from the ambulances and wagons. Dressings and stores in either or both of the latter sections might not be available when most urgently needed. In other words, it is thought that each bearer and dressing station parties should each be complete in itself, and should carry a sufficient number of dressings and stores to care for a ten percentum casualty among the troops they may be serving, dependence being placed upon the more or less uncertain supply of the wheeled transportation for further need.

With this idea in mind attention may first be directed to the dressing station.

Paragraph 869, M. M. D., 1911 (Method of Packing the Dressing Station Equipment), and consequently paragraph 866 (Dressing Station Equipment) have been modified by the following letter:

137976-B WAR DEPARTMENT BMI

Office of the Surgeon General,
Washington. July 22, 1913.

From: The Surgeon General's Office.

To: The Commanding Officer, Ambulance Company No. 2, Presidio of San Francisco, Cal. (Through Department Surgeon, Western Department).

Subject: MODIFICATIONS OF PAR. 869, M. M. D., 1911.

1. The method of packing the equipment for a dressing station was considered by the Board of Officers at the Maneuver Division in San Antonio, and as a result of their deliberations they submitted the following:

PACK MULE TRANSPORTATION FOR DRESSING STATION.

Since some articles listed in paragraph 866 of the Manual are deemed unnecessary and it had already been decided by the Board to recommend that they be dropped

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from the list, these were left out of the dressing station equipment. This made it necessary to change the mode of packing.

The scheme recommended by the Board is given below. None of the mules is overloaded and the packing is easily done.

DRESSING STATION EQUIPMENT.

Arrangements of Packs.

Mule No. 1—		
Right side:	1 box hospital stores (in bag)	80 lbs.
Left side:	1 box hospital stores (in bag)	80 "
On top of frame:	12 acetylene lamps (in box).	
	1 case operating	40 "
	Total weight	200 lbs.
Mule No. 2—		
Right side:	2 boxes, surgical dressings (in bags)	80 lbs.
Left side:	2 boxes, surgical dressings (in bags)	80 "
	Total weight	160 lbs.
Mule No. 3—		
Right side:	1 chest sterilizer	100 lbs.
Left side:	1 chest detached service	100 "
	Total weight	200 lbs.
Mule No. 4—		
Right side:	1 tent fly	35 lbs.
	3 tins alcohol, denatured	21 lbs.
	1 axe	5 "
	2 camp kettles 3 buckets 3 wash basins	20 "
	Weight	81 lbs.
Left side:	1 tent fly	35 lbs.
	3 tins alcohol	21 "
	1 axe	5 "
	3 buckets, G. I. 1 green lantern 1 white lantern	20 "
	Weight	81 lbs.
On top of frame:		
	15 tins calcium carbide, in bag	30 lbs.
	Total weight	192 lbs.

In order to reduce the weight and facilitate the adjustment of the packs it is recommended that as far as possible boxes be eliminated from the dressing station outfit. This can be easily done by having, as a part of the equipment of each pack saddle, a strong canvas bag 3x3 feet with grommets placed at equal intervals around its mouth and with draw ropes passing through the grommets.

Loads Nos. 1 and 2 can be reduced approximately 40 and 80 pounds, respectively, by this substitution.

A complete dressing station outfit was loaded on the four mules as per list given above and two marches of eight miles each were made. The packs rode easily, no readjustment being necessary during the marches.

The mules were critically inspected at end of march and they appeared to be all right in every respect. No chafing from rubbing, sore backs or other injury was observed.

It is the opinion of the board that the pack outfit will prove satisfactory.

2. It is desired by the Surgeon General that you use the method and equipment outlined hereon for your company, making such observations at the end of three months' trial as may appear pertinent to you.

By order of the Surgeon General.

F. A. WINTER,
Lt. Col., Medical Corps.

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It will be seen that the number of acetylene lamps has been increased from six to twelve; that the two cases bedding and clothing, tent unit; the two alcohol stoves; the commode chest and four lanterns have been omitted; that one sterilizer chest has been added. These changes affect the load for the pack mules. The articles dropped still remain a part of the dressing station equipment carried upon the wagons, and paragraph 866 (The Dressing Station Equipment), as amended by C. M. M. D. No. 5 and modified by the letter quoted remains in force.

Having learned what at present constitutes the equipment of this important section, it may now be studied.

Instruments and Appliances—Buckets and Basins. White Enamel.—In a short time and with no usage excepting transportation in the packs, the enamel will chip and break. The articles will become unsightly and even useless from a surgical viewpoint. It is thought that basins and buckets, each made of one piece of heavy aluminum pressed into proper shape might be more serviceable. There would be no chipping or rust; they would prove more durable, would hold heat for a longer period, and their lightness would permit doubling the number allowed without increasing the total weight now prescribed. Three buckets and three basins appear a meager amount for a dressing station.

The only solution liable to amalgamate or injure that might be placed in these receptacles is mercury. It is not listed among the antiseptics at this station.

Buckets, Galvanized Iron—Kettles, Camp.—In so far as concerns lightness, freedom from rust, liability to leak, retention of heat, cleanliness, durability and the ability to increase the number without adding to the allotted weight, the same remarks hold good concerning the four galvanized iron buckets and two camp kettles. At present there is a woful lack in cooking utensils for the hospital stores.

Lights.—The packs contain two lanterns (one white, one green) and twelve acetylene hand lamps. No illuminating oil is included.

If the roads permit and the trains can be passed, the ambulances and wagons will bring forty-five more lanterns and the oil. Even though this junction ultimately occurs, much valuable time will probably have been lost. It would seem better if the lighting plant, so to speak, were separate and complete in itself, and entirely carried in the packs. This could be easily done by dropping the ten lanterns listed in the equipment and

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substituting six acetylene hand lamps in addition to those already allowed. These might be used as follows:

Bearer section, officers and non-commissioned officers	6
Dressing station, receiving and forwarding section	2
Operating section	4
Seriously wounded section	2
Slightly wounded section	2
Kitchen	2
Total	18

These lamps are readily packed, not easily broken, do not smoke, furnish a much better and more steady light and do away with the necessity of transporting illuminating oil. Each lamp will burn 4¾ hours with 3½ ounces of calcium carbide; the thirty pounds carried in the packs will supply the entire eighteen lamps for thirty-five hours.

Perhaps a word may be inserted regarding the lanterns now furnished by the Medical Department. They easily become unsoldered at the top near the center. Unless soon repaired, and this may not be possible in the field, the upper part of the frame breaks off and the lantern is useless. More serviceable are those similar to the Vesta type of the Dietz make as issued by the Quartermaster Corps.

Hospital Stores.—Omitting the condiments, the following list enumerates the principal articles of Hospital Stores and cites their location.

Article.	Ambulances.	Dressing Station.
Beef extract or liquid	216 ozs.	72 ozs.
Brandy	12 qts.	0
Chocolate	36 lbs.	4 lbs.
Milk, condensed	72 lbs.	18 lbs.
Milk, malted	24 lbs.	14 lbs.
Sugar	48 lbs.	24 lbs.
Tea	6 lbs.	2 lbs.
Rolled oats	0	12 lbs.
Soups, assorted	0	24 lbs.

According to Major James L. Bevans, Medical Corps, these supplies can be prepared as follows:

Blanc mange	960 dishes
Beef tea	1,184 cups
Soup	96 cups
Milk punch	384 cups
Tea	384 cups
Malted milk	304 cups
Oatmeal porridge	60 dishes
Oatmeal gruel	120 cups
Chocolate	640 cups
Total	4,132 cups or dishes

A rough average of the total amount shows approximately one-third present with the dressing station. Calculating upon

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a ten percentum casualty basis, it is seen that the food stores actually at hand are abundant.

Surgical Dressings.—Estimating upon the basis of an Ambulance Company at full war strength with equipment complete these figures are obtained:

Bandages, gauze, compressed:	
Pouches, Hospital Corps and Orderly	420
Chest, detached service	80
Surgical dressings, reserve	576
Surgical dressings, ambulance box	288
	1,364
Deducting number with transportation section	408
Total at dressing station or with bearers	956
Packets, first aid:	
Pouches, Hospital Corps and Orderly	280
Surgical dressings, reserve	96
Surgical dressings, ambulance box	288
	664
Deducting number with transportation section	80
Total at dressing station or with bearers	584
Gauze, sublimated, two ½-yard lengths, in package:	
Pouches, Hospital Corps and Orderly	292
Chest, detached service	40
Surgical dressings, reserve	512
Surgical dressings, ambulance box	432
	1,276
Deducting number with transportation section	516
Total at dressing station or with bearers	760
Cotton, absorbent, sterilized, in 1-ounce package:	
Chest, detached service	26
Surgical dressings, reserve	176
Surgical dressings, ambulance box	96
	298
Deducting number with transportation section	96
Total at dressing station	202
Bandages, plaster of Paris, 3-inch, in individual packets:	
Chest, detached service	6
Surgical dressings, reserve	48
Surgical dressings, ambulance box	72
	126
Deducting number with transportation section	72
Total at dressing station	54
Plaster, adhesive, zinc, 1 or 2 inches by 10 yards, spools:	
Pouches, Hospital Corps and Orderly	700
Chest, detached service	30
Surgical dressings, reserve	480
Surgical dressings, ambulance box	1,440
	2,650
Deducting number with transportation section	1,460
Total at dressing station or with bearers	1,190

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Splints, wire gauze, yards:	
Pouches, Hospital Corps and Orderly	70
Surgical dressings, reserve	24
	94
Deducting number with transportation section	20
Total at dressing station or with bearers	74
Wood, veneer:	
Surgical dressings, reserve	48
Total at dressing station	48
Antiseptics—Iodine, potassium iodide in glass tubes:	
Pouches, Hospital Corps and Orderly	700
Chest, detached service	20
Surgical dressings, reserve	240
Surgical dressings, ambulance box	240
	1,200
Deducting number with transportation section	440
Total at dressing station or with bearers	760
Phenol, ounces:	
Chest, detached service	12
Chest, sterilizer	32
Total at dressing station	44
Alcohol, ounces:	
Chest, detached service	12
Total at dressing station	12
Tablets, antiseptic, 250 in a bottle:	
Surgical dressings, ambulance box	12
Gloves, rubber:	
Chest, detached service, pairs	2
Chest, sterilizer, pairs	8
Total at dressing station	10
Anæsthetics, chloroform, pounds:	
Pouches, orderly	¾
Chest, detached service	¾
Surgical dressings, ambulance box	3
	4½
Deducting amount with transportation	3¼
Total at dressing station or with bearers	1¼
Soap, green, pounds:	
Chest, sterilizer	1
Surgical dressings, reserve	2
Total at dressing station	3
Diagnosis tags, books:	
Pouches, orderly	6
Chest, detached service	2
Surgical dressings, reserve	40
Total at dressing station or with bearers	48

Each book contains 25 tags and duplicates, making a total of 1,200 tags and duplicates available.

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The writer has had no experience upon the battlefield. Theoretically it would seem as though the dressings and antiseptics with the station and bearers would be sufficient. There might be serious shortage of chloroform.

Packing Boxes.—A word may be expressed regarding the boxes in which both the reserve dressings and the Hospital Stores are packed. They break easily. Daily packing soon renders them unfit for service. Boxes made of ⅞-inch double surfaced poplar, bound with angle iron, ⅞ by ⅛ inch, would not be much heavier. Poplar will not split and is light. The irons, hinges and locks should be set in so as to present smooth surfaces in packing.

Stoves, Alcohol.—With a wind blowing, considerable difficulty will be encountered in maintaining a steady flame, if indeed any flame at all, with the stoves at present issued. The addition of a protector of sheet iron, or similar material, about the stand, with a sliding or hinged door, would permit the vaporizing vessel to be reached and guard the flame from drafts.

The packs carry six two-quart tins of denatured alcohol. One stove will consume one quart each 4½ hours. The three will burn eighteen hours with the fuel at hand.

The Pack Saddle.—An almost daily use extending over a period of two and one-half years has demonstrated the excellence of the Medical Department pack saddle. It is light, easily placed upon a mule, readily packed, and, with the exception to be noted, strong and durable.

During the summer of 1913, the four mules of the pack section of an Ambulance Company transported eight hundred pounds of grain eighty-five miles in five days, averaging seventeen miles daily. No sore backs of any kind developed. In fact, the animals of this organization have never had any abrasions or injuries resulting from the saddles, although the entire dressing station has been packed and transported from thirty-five to forty miles weekly for weeks at a time during the period of field training.

However, the following defects have been noted:

The front and rear arches of the frame are too light. They cannot carry the rivets fastening the center bar and readily break near the T's upon which the cargo sling rings are placed. It is suggested that instead of the ⅞ by ⅛ inch angle iron now used the arches be made of T-irons having a base of 1¼ inches, a T of ⅞ inch and a thickness of ⅛ inch. This broadened base

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will furnish ample support and do away with the only weakness noted. No material increase in weight will result.

It has also been found that the rectangular "rings" upon the cargo slings bind when the load is lifted to permit of their being adjusted over the T's of the saddle in packing.

The substitution of ordinary iron rings, four inches in diameter, for the rectangular ones will obviate the difficulty mentioned, and will not allow undue shifting of the loads.

It is desirable that the cargo slings be made adjustable and capable of being fitted to a small as well as a large pack. This cannot be done at present without considerable overlapping.

Packing the Dressing Station.—As to the method of packing the dressing station, that indicated in the letter quoted above was followed in detail for a period of four months. During this time the station was transported an average of forty miles each week. The weight and shape of the cargo proved satisfactory, but the plan of substituting canvas bags for the boxes carrying the Hospital Stores and Surgical Dressings was not a success. At the end of the four months the containers of the stores were dented, broken or leaking and the wrappers of the bandages and other dressings badly worn.

The plan was abandoned and at present all articles are carried in unit boxes.

Number and Nature of Articles Carried.—Regarding the number and nature of the articles carried in the dressing station, the writer feels considerable hesitation in expressing an opinion. As stated above, men longer in the service, and with greater experience, have worked and are working earnestly upon the problem. The excellent results obtained, as shown by the analysis so far made, render caution necessary in the suggestion of changes.

The function of an Ambulance Company is primarily that of transportation and secondarily that of first aid, the latter supplementing the regimental service. The more strictly professional work, as distinguished from what might be termed military duty, namely, relieving the fighting line of its incubus of wounded, is the function of the units in the rear.

It follows, then, that the equipment of the dressing station should be as meager as is consistent with the efficient performance of the service demanded; that it should be to the greatest degree mobile and capable of self sustentation. It would seem desirable to divorce the dressing station and bearer section from

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all connection with the wheeled transportation; this as a precaution against events unforeseen and against which no intelligent action could be taken. By so doing the station, whenever and wherever it was opened, could function without hindrance from lack of supplies, collecting its injured, applying its first aid and relieving the suffering, and could leave to the wheeled transportation the problem of expeditiously removing the wounded further to the rear.

It is thought that perhaps the tent units of bedding and clothing, the box of bed pans, the Darnall filter and four tins of denatured alcohol, totaling 480 pounds, could be removed from the dressing station.

Shelter is scarce. Four hospital tent flies, 120 pounds, might be added, the whole equipment placed in the standard Medical Department unit boxes and taken off wagon No. 1.

The writer has had in mind for some time a dressing station compactly boxed in receptacles the size of the Medical Department unit boxes, excepting that opposite the detached service chest, which would be the size of the latter; each pack to weigh one hundred pounds, making a total load of two hundred pounds for each mule; and the number of mules to be increased from four to six and the entire equipment carried by them, none of it being with the wheeled transportation. The small, compact loads would permit of increased mobility and of traveling with cavalry or other mounted troops, since the trot could be easily taken by the mules, something not at present possible for any distance. Moreover, all the equipment would be immediately at hand when wanted. It is the writer's intention, if authority is granted, to secure and arrange the following articles as indicated below, and with a dressing station so constituted to "try it out" upon the next extended march taken by the organization. A few of the weights given are merely estimates.

Mule No. 1—	
1 box surgical dressings, reserve	70 lbs.
1 hospital tent fly	30 "
	100 lbs.
1 box surgical dressings, reserve	70 lbs.
1 hospital tent fly	30 "
	100 lbs.
Mule No. 2—	
1 box surgical dressings, reserve	70 lbs.
1 hospital tent fly	30 "
	100 lbs.
1 box surgical dressings, reserve	70 lbs.
1 hospital tent fly	30 "
	100 lbs.

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Mule No. 3—

1	box hospital stores	100 lbs.
1	box hospital stores	100 "
		200 lbs.

Mule No. 4—

Box 1:

6	buckets, aluminum	18 lbs.
6	basins, aluminum	12 "
5	2-pound tins calcium carbide	10 "
1	2-quart tin denatured alcohol	5 "
1	axe, short handled	5
		50 lbs.

Box 2:

2	stoves, alcohol	6 lbs.
1	case, general operating, canvas	14 "
1	bed pan	5 "
1	urinal	2 "
4	2-quart tins denatured alcohol	20 "
1	2-pound tin calcium carbide	2 "
		49 lbs.

Box 3:

4	colors, camp, without staff	1 lb.
12	acetylene lamps, hand	36 lbs.
1	axe	5 "
1	hammer	1 "
1	saw	2 "
5	pounds nails	5 "
		50 lbs.

Box 4:

6	acetylene lamps	18 lbs.
10	2-pound tins calcium carbide	20 "
2	2-quart tins denatured alcohol	10 "
8	guidons, red cross, without staff	2 "
		50 lbs.

Mule No. 5—

1	chest, detached service	100 lbs.
1	kitchen pack	100 "

2 15-gallon boilers.
2 12-gallon boilers.
2 bake pans, large.
1 butcher knife.
2 spoons, large.
2 1-quart dippers.
2 12-gallon water bags, canvas.
2 yards solder wire.
2 sets fire irons.

NOTE.—The articles enumerated are a part of the Thomas Field Cooking Outfit. All can be nested, forming a pack about the size of the detached service chest.

Mule No. 6.

1 set water bags.

WHEELED TRANSPORTATION AND GENERAL EQUIPMENT.

The Ambulances.—The difficulties attendant upon designing an amublance in which strength and durability, lightness of draft, comfort in carriage, ease in loading and unloading, safety in

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control, sufficiency in lighting, space for accessories and water, etc., are fully recognized.

The present ambulance is the result of years of experience and experiment. It is a thoroughly serviceable vehicle, yet much remains to be eliminated and much to be added ere an ambulance is produced having a judicious combination of the features most desirable. Perhaps such an ambulance is unattainable. It may be that the entire ambulance wagon is to give way to one motor driven. Only time and experiment will tell.

It is desired, however, to make some suggestions.

The Brake.—The present drop bar brake is far from satisfactory. A driver cannot put sufficient weight upon the lever with his foot and at the same exert his full strength in pulling upon the four lines of his team. In addition, the lever being on one side instead of the center of the vehicle, most of the power is transmitted to that side rather than being equally distributed. The brake blocks are too small; they will not hold.

The Shear Brake has been tried and found much superior. It has a ratchet placed at the center of the foot board, a brake rod passing under the middle of the body, and two arms (shears) carrying large blocks to the rear wheels. The brake beam thrown on, the ratchet receives the lever and the wheels are held, permitting the driver to give his entire attention to his animals.

The Lazy-back.—The hinged back upon the seats of the ambulances of the older pattern is thought to be preferable. With the present type it is very difficult to load the lower berth.

The Guidon Socket.—To avoid hitting trees along the roadside this should be upon the left side. A socket placed at the front bow, about one foot from the top, together with a draw band at the top, would render the guidon secure and keep it erect.

The Water Cans.—It is suggested that a change be made in the location of the water cans. At present, placed between the rear wheels, they are exposed to dust or mud. The door of the encasing crate frequently jars open and occasionally a can falls out. The tanks and faucets are exposed to breakage and readily become leaky. Of still greater importance, the driver's control of the water supply is lost. The former plan of having the tanks in the jockey box under the seat appears a better one to the writer.

Building a box with compartments and a hinged door, for hospital and surgical stores and ambulance accessories, where

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the tanks now are, would permit the change indicated and afford better care of the supplies.

Single-trees.—Placing iron plates upon the single-trees over the point striking the front wheels will be advantageous in preventing a gradual wearing away and breakage.

Screws driven through the end clips will keep these from falling off and perhaps prevent an ensuing disaster.

Lights.—Next to the brakes, the lighting plant of the ambulance section has given the greatest trouble. It is expensive, yet easily damaged. The long cylinder carrying the candles becomes jammed or is broken off, and the automatic spring feed for the candle becomes clogged with tallow. The plate glass works loose or breaks. The hinged door is readily injured and its spring-like catch soon becomes useless. A much more serviceable light could be obtained with an ordinary railway switchman's lantern equipped with a reflector carrying a green prism on the outer side, and a globe containing a lens. It could be secured and steadied upon an ambulance by a device similar to that used upon an ordinary fire truck.

It is thought a still more satisfactory lighting system would be the substitution of acetylene lamps for those now used. Illuminating oil is prescribed as one of the articles of supply to be carried in the ambulance, yet there is at present no place for it. A half pound can of carbide might be crowded in, particularly if the acetylene lamps carried handles permitting their use as hand lamps when needed, thus doing away with the two lanterns in each ambulance equipment, and making a consequent saving of space.

In conclusion, the writer wishes to state, as in the begining of this article, that the opinions advanced, with the reasons given, and the suggestions offered, represent merely ideas of his own set forth with the hope that they, with those of other members of the Medical Corps, the Reserve Corps, and the Medical Corps of the Militia, will together better the service of which we form a part. All to the end that should war, with its awful suffering and devastation, break over our land, the Medical Department may, with confidence born of preparation, enter its duties and perform well its tasks.

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Suggestions for Field Emergency Case

By Powell C. Fauntleroy, Major Medical Corps, U. S. Army.

THE Field Emergency Case here suggested is designed to be part of the equipment of medical officers and non-comsioned officers Hospital Corps, when in field service. The case is to be swung from the shoulder by a strap with swivel catches.

The case itself is that of the present "Emergency Case," but the contents are selected to meet the immediate needs of camp, march and battlefield.

The contents are:

2 containers Quin. Sulph. tablets.
2 containers Aspirin tablets.
2 containers C. & O. pills.
2 containers C. C. pills.
1 vial solution morphine.
1 vial solution strychnine.
1 vial solution novo-cain.
1 vial Sat. solution Potass. Permang.
1 container morphine tablets.
1 container Dover's powder tablets.
2 containers Sodii mentha Pip. tablets.
2 vials Tinct. iodine.
2 vials collodion, flexible.
1 Reno hypodermic syringe.

1 pair scissors, 1 artery forceps, 1 dressing forceps, 12 surgical needles, 3 pieces No. 4 catgut (18 inches long), and 1 field tourniquet, 1 eye dropper, 2 camel's hair brushes, 1 clinical thermometer and 3 pieces zinc oxide plaster 1 inch wide by 10 yards long.

It is believed that this Field Emergency Case will put in the hands of the medical officers and non-commissioned officers, in compact form, the means of meeting the emergencies of camp, march and battlefield more promptly and efficiently than cases heretofore provided.

This case is not thought to be perfect. It is offered as a suggestion based on personal experience, and therefore open to such modification as the varied experience of others may dictate.

It will be noted that in this Field Emergency Case there are to be found, together with other things, the articles contained in the Medical Officer's Field Pocket Case, a description of which was published in The Military Surgeon for April, 1914.

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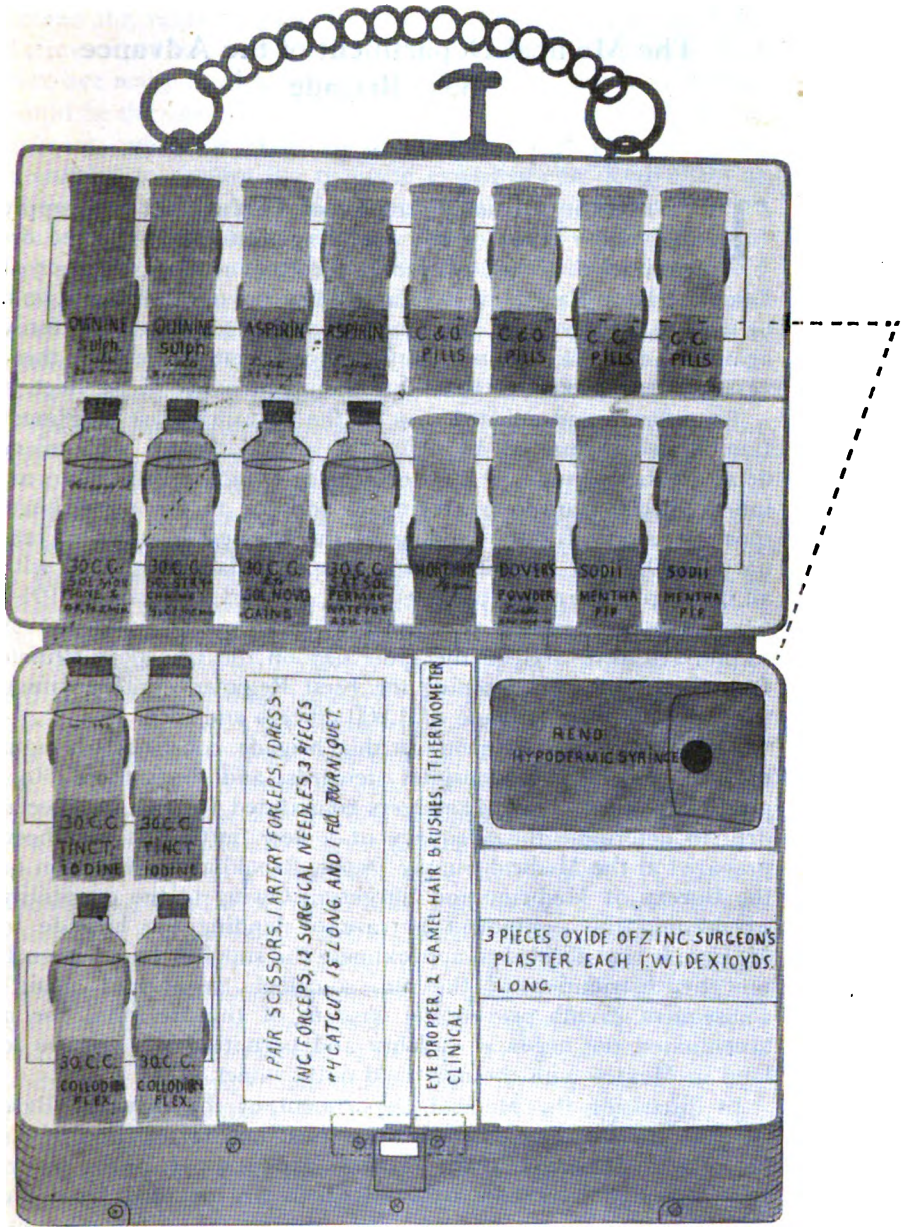
QUININE Sulph.
QUININE Sulph.
ASPIRIN
ASPIRIN
C & C PILLS
C & C PILLS
C. C. PILLS
C. C. PILLS
30 C.C. TINCT. IODINE
30 C.C. TINCT. IODINE
30 C.C. COLLODION FLEX.
30 C.C. COLLODION FLEX.
1 PAIR SCISSORS, 1 ARTERY FORCEPS, 1 DRESSING FORCEPS, 12 SURGICAL NEEDLES, 3 PIECES #4 CATGUT 15" LONG, AND 1 FD. TOURNIQUET.
EYE DROPPER, 2 CAMEL HAIR BRUSHES, 1 THERMOMETER CLINICAL
RENO HYPODERMIC SYRINGE
3 PIECES OXIDE OF ZINC SURGEON'S PLASTER EACH 1" WIDE X 10 YDS. LONG.

Field Emergency Case.

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The Medical Department of the Advance Base Brigade*

By D. N. Carpenter, Surgeon, U. S. Navy.

THE necessity of having a protected refuge for the supply and repair ships of the operating fleet called for the organization of an Advance Base Regiment of Marines at League Island, Pa. Here was assembled the outfit which would be used to quickly place an island or harbor in a state of defense against the attack of an enemy's forces, sent to destroy these vessels whose protection is vital to the maintenance of the fleet.

The officers and enlisted men of the Advance Base Regiment familiarized themselves by drills for several months with every detail of their equipment. The U. S. S. *Hancock* was converted into a special transport carrying in addition to her usual boats those necessary for the landing of the heaviest gear. On January 3, 1914, the regiment embarked at Philadelphia, Pa., with all its supplies, arriving at Culebra, U. S. W. I., January 9, 1914, where the organization proceeded to carry out its mission. A second regiment arrived the same day on the transport *Prairie* from Pensacola, Fla., joining the First Regiment, both forming the Advance Base Brigade of 1,800 officers and men.

The Medical Department of this brigade consisted of eight medical officers, seven hospital stewards, and thirty-three Hospital Corps men. The maneuvers constituted for them a special drill to determine the adequacy of a new outfit that had been prepared at the Medical Supply Depot, Brooklyn, by direction of the Bureau of Medicine and Surgery. Owing to the possibility of needing this equipment in case of landing the brigade in Mexico, it was decided to approximate the supplies found in each unit by distribution of the old, so-called "regimental outfit." Subsequent events proved the wisdom of this decision, for it accentuated the needs at Culebra and permitted the brigade to land in Mexico with the new field outfit intact.

In discussing the Medical Department of the Advance Base Brigade the first important feature must be the selection of its personnel. Inasmuch as the Marine Corps is a part of the Navy, the medical officers and Hospital Corps are detailed from the naval service. Experience on this expedition, as on former ones,

* Read at the Twenty-third Annual Meeting of the Association.

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showed the value of previous training with troops in the field. Marine expeditions have been so frequent of recent years that there are many medical officers qualified for this duty, and these should be the ones chosen as regimental surgeons. For battalion surgeons, young assistants without previous training, will thus be enabled to acquire the requisite experience to detail them as regimental surgeons on future expeditions. It is hoped that there will be a re-establishment of the training school for the Hospital Corps, and that part of the course will comprise drills with a field outfit, and the various duties of the sanitary personnel. All should be in a good condition physically, well vaccinated against smallpox and typhoid and mentally sound.

The question of uniforms for the medical officers and Hospital Corps was satisfactorily answered on this expedition. The same field uniform as that of the organization with which they were serving was believed to be desirable, the only addition being the Medical Corps insignia and devices. When medical officers are ordered on these expeditions it has been recommended that they be furnished with a list of the required uniform, which can be obtained at the Marine Corps depot quartermaster and the Army and Navy Co-operative Company in Philadelphia. This consists of a campaign hat with Marine Corps device and officer's cord; two pairs khaki riding trousers; one khaki uniform coat with bronze buttons; two khaki flannel shirts; one pair pigskin puttees; one pair canvas leggings; one pair tan shoes; one web belt and one set of rank and corps devices. In addition it will be a good investment to buy a bedding and clothing roll. These are made of khaki canvas and are a great convenience in the field. However, a sea bag and a valise will serve the purpose. A portable folding washstand with rubber basin and bucket; a South African water bag; a wrist watch, and a German military knife will also prove useful but are not necessities. A moderate supply of underwear, pillow cases, sheets, towels, pajamas, socks, blankets, toilet articles, white and black shoes, slippers, several white uniforms, one blue service uniform, belt, sword and gloves, white and blue caps, mackintosh, one civilian suit with hat, overcoat, shirts, collars and neckties must be included for use on shipboard and shore. A uniform overcoat or cape, in case of cold weather, will be required. The list seems long but if the quantities are held down everything can be carried in one steamer trunk and the bedding and clothing rolls. The total weight of baggage allowed is limited, according to rank, in a

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circular letter issued by the Major General Commandant of the Marines, October 22, 1913. This will probably be sent for the information of the medical officer when ordered. The total cost of this field uniform will not exceed $30. Trunks containing the officer's remaining uniforms may be stored at Philadelphia, Pa. For the Hospital Corps the extra expense is somewhat of a hardship, as their marine uniform costs between $8 and $10. It is hoped that naval regulation uniform in the future will include khaki. Its value for a landing force was recently seen at Vera Cruz, Mexico, and the fleet was soon afterward equipped. The Hospital Corps rating badges are used on the marine uniform, but it would be preferable to have them of khaki color. In the field red cross brassards are worn by the entire personnel of the Medical Department.

The accoutrements should be issued to the medical officers and Hospital Corps men immediately upon their reporting for duty. If this is not done before embarkation it will be difficult to obtain them after the quartermaster stores have been placed in the "hold" of the transport and perhaps for several days after landing. This equipment comprises revolver belt with suspenders, haversack and mess gear, canteen, poncho, shelter-tent half and mosquito netting. When cots are issued after landing these also may be obtained. Buckets, basins and other quartermaster stores are drawn as necessary.

The Army medical officers have for years been thrashing out the medical equipment for the field in order to retain the necessities yet cutting down weight and bulk to secure greater mobility. The closer we follow their supply table the more successful we shall be in the meeting the requirements. This is an important factor in the training of a young assistant surgeon fresh from the liberal supplies of a civilian hospital or the medical department of the Navy. When he finds he must quickly transport the various drugs and instruments that seem so necessary he will soon learn to do without them. The new brigade outfit owes its success to the fact that it adheres closely to the Army equipment. Most of the additions suggested after our experience at Culebra are found in the Army supply table, and were omitted in the original selection. This brigade outfit has already been described in the *Naval Medical Bulletin* for January, 1914.

The company units meet the demand of the Marines who are frequently required to send out separate companies, or small detachments. They consist of the naval regulation hospital

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corps pouch (for contents see Naval Medical Supply Table), a pouch filled with prepared dressings of all kinds and a medical case filled with the simpler drugs most used. The new naval expeditionary cases, remodelled by Surgeons Shipp and Grove, are very complete. These were included as battalion units. The Army has the detached service chest for this purpose. There are now a sufficient number of regimental outfits (four) to provide for overhauling and resupply of those not in use. Regiments or detachments sent on expeditionary duty will thus have an equipment ready at all times. It should no longer be necessary to send bulky stores, unsuitably packed, many being broken in transit, and which are not economical or suitable in the field. The company, battalion units, and stretchers should not be placed among the other stores in the "hold," but kept in the sick bay of the transport, available for instant use on landing. When the entire regimental outfit is landed it will provide for a hospital or infirmary. If the field hospital is not established the regimental hospital of twelve cots is used. This is capable of extension, and is sufficient for 1,500 men for three months. When a brigade of several regiments is sent on advance base duty, or as an expeditionary force, the field hospital equipment will be included. The number of furniture and bedding units provide for seventy-eight cots, sufficient for a small brigade unless there be an epidemic or many wounded. If so, then this hospital could be at once expanded by calling on the regimental medical departments to turn in their bedding and furniture units. Tentage is carried by the Quartermaster, but should not be used if buildings are available. The furniture units are left behind on an active campaign in the field. The field hospital is a separate tactical unit, and should therefore have its medical officers and sanitary personnel distinct from the regiments. If it is not available, then two or more regiments, united in a permanent or semi-permanent camp, should combine their equipment to establish one hospital, with as many infirmaries as there are regiments.

To complete the organization of the Medical Department of the Marine Brigade, it is hoped that a sufficient number of ambulances (twelve), fully equipped, will be provided to establish an Ambulance Company. Like the field hospital, this is a separate tactical unit, and should be supplied with the Army outfit for a dressing station. It is a mobile hospital of forty-eight beds, necessary for the evacuation of the wounded from the regimental aid stations to the field hospital. There should

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be a medical officer in command, two assistant surgeons, three hospital stewards and twelve hospital corps men, besides ambulance drivers detailed from the Marines. For the Advance Base Brigade, ambulances or an Ambulance Company would be bulky equipment, out of proportion to their necessity, but for expeditionary work they should be included. The great object in the Advance Base work is to cut down weight and bulk. The Medical Department will have to depend on boats and launches, litters, handcarts, travois, native carts and horses for the transportation of the sick, wounded and equipment. If additional supplies are sent to the fortified base, then one or more ambulances might be considered. Pack saddles are, however, a necessity, both for expeditionary and Advance Base service. Each regimental medical outfit should include one, as should also the artillery battalion. These outfits should be furnished by the Quartermaster's department.

Besides the need of ambulances for the expeditionary brigade, there should be, for the transportation of the medical outfit of each regiment, one escort wagon, drawn by four mules. This wagon follows with the supply train. For the quickly advancing regiment the medical officers must depend on one pack mule carrying a box of reserve dressings, a tent fly, lantern, axe, a few hospital stores, and medicine. These supplies will bring the weight to 150 to 200 pounds, which is all a mule can carry. Instead of the box of reserve dressings, the expeditionary cases or sea bags filled with selected articles may be swung as panniers.

Before going into action the Regimental Surgeon will request that the band, or a certain number of men from each company, be detailed as stretcher bearers. These will be available to help transport the litters, company cases and dressing pouches. The new expeditionary cases are made to be carried as knapsacks, but it must be remembered that the men are already burdened with their own accoutrements.

Owing to the peculiar character of duty that the Marines do, "with one foot on land and one on sea," the question of transportation will always be a knotty one. One of the secrets of the success and ability of the Marines is the necessity of their having to improvise and utilize whatever can be found. We can therefore count on obtaining native carts and the requisite number of horses and saddles for the Medical Department. When serving with the Army they are expected to provide the regulation transportation. The field hospital will require six escort wagons, drawn by four mules each, to carry the complete

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equipment. The Army field hospital is larger (216) cots, and eight wagons are provided. At least twelve native carts will be needed if the six escort wagons are not available.

The Advance Base Brigade, judging from our experience at Culebra, will be divided into several detachments, at some distance from each other. These include batteries for fixed defence, mobile artillery, infantry, engineers, aviators, machine-gun detachments, signal and mine companies, and the reserves in camp. This means the division of the Medical Department, and therefore the regiment of the fixed defence should have at least five medical officers, five hospital stewards and twenty hospital corps men. Isolated batteries especially demand the services of a medical officer. During the Culebra maneuvers these medical officers were provided at the expense of the field hospital.

The mobile regiment of the Advance Base, or a regiment on expeditionary duty should have a Regimental Surgeon, with one hospital steward and five hospital corps men for the aid station; an Assistant Surgeon for each battalion, with one hospital steward and one hospital corps man as orderly, and each company should have one hospital corps man. This is the organization of the Marine Brigade at present and is based proportionately on the strength of the sanitary personnel of an Army regiment.

The field hospital should have a medical officer in command, three assistant surgeons, three hospital stewards and twenty hospital corps men. This is the minimum requirement in proportion to the Army allowance. Casualties and disease in the Medical Department during the war must also be considered. The Brigade Surgeon, with one P. A. Surgeon, three hospital stewards and twelve hospital corps men comprised the personnel at Culebra. Inasmuch as the duties of the Chief Surgeon require the Brigade Surgeon to direct the entire Medical Department, and to be with the Brigade Commander during action for the supervision of the evacuation of the wounded, he should not assume duties that conflict.

The details of administration of the Medical Department of the regiment, including camp sanitation and care of the troops in the field, must be governed by the Regimental Surgeon. On detached service the Surgeon with the command has this responsibility. A thorough knowledge of *Munson's* or *Havard's Military Hygiene*, and the current numbers of the *Military Surgeon*, will keep them up to date. For example, the best type of latrine for the field, and incinerators for the disposal of kitchen refuse and garbage, can be found in the article describ-

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ing the Army camp at Texas City. The Darnall filter has replaced the Forbes-Waterhouse sterilizer; yet it, too, is cumbersome. The precipitation principle has been utilized in the recently designed canvas bag filter of Maj. Lyster, which offers a light and satisfactory apparatus for the use of troops on the march. What value quinine has as a malaria prophylactic is discussed by P. A. Surgeon McGuire. The objections to headnets and gloves for sentries at night and the use of citronella oil; the importance of screening kitchens and mess halls to protect food from flies; the proper use of venereal prophylaxis and many other details for the care of troops should be known by the Regimental Surgeon. His responsibilities do not end until he has made the proper written recommendations to his commanding officer. *Straub's Handbook* and *Munson's "Study in Sanitary Troop Leading"* set forth the details of administration of every organization of the Medical Department in the field. These books, with the regulations to be found in the Army Medical Manual and Field Service Regulations, should be read by all the medical officers in the brigade, not only to determine the nature of their duties, but to obtain a detailed knowledge of their equipment. The Brigade Surgeon and the medical officers in command of the Ambulance Company and Field Hospital will find the tactical studies by Duncan, Straub and Munson of special value in handling the problems of evacuation and care of the wounded in the field.

The transports assigned to carry the regiments of the Advance Base Brigade should be suitable for the purpose, and should not be allowed to be overcrowded, for events may compel the troops to live for months on board. They should be either built for the purpose or reconstructed, as in the case of the *Hancock*. The Surgeon of the transport must remember that with troops on board, his department exists primarily for their care. He must therefore see to it that he has sufficient medical supplies for the full allowance of men to be carried, not only for a limited voyage in transit to a base, but for an indefinite number of weeks or months. Emergencies arise, and the Advance Base Brigade may be sent on expeditionary duty or retained on board. The Regimental Surgeon will arrange with the Surgeon of the transport for the necessary space in the sick bay for his patients, and will provide a medical officer to hold sick call at the hour assigned.

Part of the sanitary personnel of the regiment will be detailed for duty in the sick bay. There should be a strict supervision

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of the cleanliness and sanitary condition of the living quarters of the troops by the Regimental Surgeon, but in all matters pertaining to the general sanitation of the ship he should act through the ship's Surgeon.

Philadelphia has been the station for the Advance Base Brigade, but wherever located the Medical Department should be kept ready for instant use. The Surgeon of the station should have this outfit in his care, and whenever an expedition returns he should examine the depleted cases and put in necessary requisitions to resupply, and have them ready for use as soon as possible. Boxes should be overhauled, or new ones made, using screws rather than nails and hasped and hinged cases when possible, keeping the weight not greater than 100 pounds. Repainting with the distinctive markings of a broad green band and red cross should be done when necessary. The number of the box should be on every side in order to quickly find it in a pile of stores. From time to time it may be necessary to replace rubber goods or perishable stores; hence the outfit should be inspected every three months if not in use.

Tentage and Quartermaster stores should always be provided in sufficient quantity on every expedition for use by the Medical Department. The regimental hospital requires four hospital tents as operating, dispensary and ward tents. The medical officers will require wall tents, while the hospital corps use the "pup" tents formed by their shelter halves. The field hospital will require seventeen hospital tents for operating, dispensary, office, storage, and thirteen ward tents. Consideration should be given to the value of single ward tents (16x40 feet), used at Texas City by the Army. These are easy to pitch, have no tent flies, require ordinary sized poles or telescopic metal poles. They will each accommodate twenty-four patients or forty on sacks. They cost twice as much as a Munson tent but will hold four times the number of patients The number of Munson tents that would accommodate the same patients would weigh twice as much, and would take longer to pitch. These ward tents are easy to heat by one stove and a pipe through the tent. Drills for quickly pitching, equipping and striking the tents of the regimental and field hospital should be held when possible. This was done at Culebra, and it was found that an operating tent could be in commission in twelve minutes. The hospital corps and medical officers should know every article in the chests and how it packs.

Prior to beginning the maneuvers, after the defence of Culebra Island had been completed, the Brigade Surgeon recom-

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mended a general plan for the evacuation of the wounded from every isolated detachment to the field hospital. The problem will vary with the situation, but at Culebra the use of boats and launches, travois, bull-carts and litters would meet all requirements. Each detachment will have its aid station, protected when possible, and when opportunity offers the wounded will be transported. On expeditionary service we have the same problems as the Army, and should be prepared to solve them by a thorough knowledge of the present accepted methods.

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The Advisability and Practicability of Specialists in the Medical Corps of the Navy*

By N. J. Blackwood, Medical Inspector, U. S. Navy.

THIS is the age of specialism in all professions, trades and pursuits, but in none has specialization been carried to such an extreme as in medicine. Not only is the whole field of medicine separated into grand divisions, such as Medicine, Surgery, Obstetrics, Gynecology, Ophthalmology, *et cetera,* but each of these grand divisions is subdivided into others, so that we have specialists on the heart, the lungs, the digestive tract, *et cetera;* surgeons who do nothing but work on the brain, or the upper or lower abdomen or fractures and dislocations, or blood vessels; we have hygienists, orthopedists, aurists, odontologists, pediatrists, bacteriologists, dermatologists, and dozens of others, gradually leading down to osteopathists, chiropodists, and christian scientists, until the poor sick man can no longer send for Dr. Smith or Dr. Brown, but must first find out what part of the human anatomy the doctors in his vicinity are willing to practice on, and then, making a partial diagnosis of his own illness, send for the man he believes will best fit his case. The result of all this is that the General Practitioner has been driven off the earth, and the Family Physician is no more, except in the smaller towns and country districts; and even here the specialist has invaded the field and the Country Practitioner no longer has the confidence gained by long experience in dealing with human ills, and the great advantage of knowing his patient's constitution from the cradle up and from manhood to the grave; but, in the words of Mr. Dooley, "sends for Doc Laparotomy," and after an extensive research from the inside out, he makes a diagnosis and prescribes treatment in accordance with the dictates of the specialist. Is this condition of affairs good either for the profession or the patient? Haven't we gone a little too far in our endeavor to attain the unattainable? Wouldn't it be better to have fewer specialists and more general knowledge? Would not there be less harm done, fewer prejudiced diagnoses, and better general results, if we had more general knowledge and less specialism? Is there not a great

* Read at the Twenty-third Annual Meeting of the Association.

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deal of truth in Mr. Dooley's remark, "If the Christian Scientists had more science and the Doctors more Christianity, it wouldn't make any difference whom you called in, if you had a good nurse?"

I do not for one moment wish to be understood as crying down specialism in medicine; far from it, for it is to this that we owe almost all we have gained in our knowledge of disease and its treatment; but I do believe that we have gone far enough, and that it is time to call a halt. I do believe that our medical schools, in the effort to prepare their students for the specialties of medicine, are paying too little attention to the general fundamental studies, without which no man can take a broad view of the subject, and without which he is not really fitted to become a specialist. A narrow or commercially minded specialist is the greatest curse to the medical profession, while a broad-minded general practitioner is the greatest blessing to the human race.

Let us look at a case in our own service that I think illustrates my point. Just when specialties were being adopted in all professions, and when it was considered a necessary part of every profession, the Navy abolished the Corps of Engineers, and required all line officers to know as much about steam engineering as about navigation or ordnance. What has been the result? Simply that the commanding officer is prepared to judge of the necessity or advisability of any changes, alterations or repairs in the engine room, just as well as in the guns and turrets, or the compasses and patent log. In other words, by his training and experience he is able to take a comprehensive view of the situation, and can issue his general orders with an intelligent understanding of the requirements. He does not have to be a specialist in steam engineering or ordnance, but simply to be a competent commanding officer, which requires a good general knowledge of all the specialties represented in his ship.

We officers of the Medical Corps of the Navy are specialists in military surgery in its broadest sense; and let us see what that means. It means that a man, to be a successful military surgeon, must have a broad general knowledge of hygiene and sanitation, must be able to perform the ordinary operations of surgery, have a good general knowledge of the origin of disease and its methods of diagnosis and treatment, a working knowledge of bacteriology and microscopy, must be able to make a

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differential diagnosis between normal and abnormal conditions of the heart and lungs, must be a fair diagnostician and a good general practitioner. The duties of the naval medical officer should be more in the way of preventive than curative medicine. If the service is properly recruited, and politics eliminated from the recruiting offices, each man in the service should be as nearly as possible a perfectly healthy specimen, and after enlistment the duty of the medical officer would then be to keep him in that condition. I have no patience with the policy of enlisting or commissioning physical defectives with the idea of operating on them or treating them so that they may be partly serviceable in times of peace, only to go to pieces during the strain and stress of war. Our Navy should be built up for war, not for peace; for the greatest possible strain, not for the least. Physical defectives are forced on the service, and then a great row is made because the retired list is so full of comparatively young men. If these men were perfect on entry, they would remain nearly so throughout their normal service. Think of the officers and men within each one's acquaintance who have some physical defect that in time of war would cause them to break down and become a burden to the country; all well in time of peace, useless in time of war, the time when they are most needed, the time for which they have been trained during their whole careers. I say again, if these defectives were prevented from entering, or were retired as soon as their defects were discovered, without any question, we would not have any need of specialists.

Again, I believe the military surgeon was never intended to practice on women and children, and should not be required to do so. He has enough to do mentally to acquire all the knowledge that will fit him to perform his duties among the enlisted and commissioned personnel, without taking up specialties not embraced within that field. If the present conditions are to be continued, and specialists encouraged within the corps, where are we to stop? Are we to have obstetricians and gynecologists? Can officers specialize on diseases of women and children, and devote years to the study of infant feeding? I do not believe a military surgeon should be required to know anything of these diseases. The normal field of activity of the naval medical officer is aboard ship, where there are no women and children, and among men on board ship and in hospitals. People should not call upon a naval medical officer for advice

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or assistance outside the normal field of this practice, any more than they would send for an ophthalmologist to treat an ingrowing toe nail or to perform a herniotomy. Their specialty is already complex enough, so complex that it is acknowledged to be an absolute necessity to train the graduate in medicine for this specialty by a six months' course in a special, carefully organized school, before he is considered fitted to receive a commission and to perform the duties of a naval medical officer, and it is not possible for him to be efficient in this specialty and also in all the other branches of medical knowledge. What are the specialists now called upon by the Navy? Ophthalmologists, bacteriologists, pediatrists, physical culturists, dentists, pharmacists, surgeons, obstetricians, hygienists, sanitarians, aurists, diagnosticians, internists, psychiatrists, dermatologists, and many more. Suppose we had these specialties allowed; in the first place, the medical corps would have to be as large as the line, or larger, and each ship would be a floating hospital loaded down with medical specialists. Who would do the duty of the naval medical officer aboard ships? An ophthalmologist could not be sent alone aboard ship, nor any of the other specialists, but each specialty would have to be represented. If a psychiatrist were sent to a ship alone, it would not be long before all the ship's company was declared insane by the doctor, and he by all the rest. This is not a mere humorous statement, for it is well within the memory of the large majority of the officers of the Medical Corps that a specialist was sent to a certain ship, and within a very short time a large perecentage of the ship's company was transferred to hospital with the particular disease that this specialist was studying, and a large proportion of these patients were restored to duty well, not having evidenced any symptoms of the disease, and they were facetiously spoken of as suffering with a new disease coupled with the name of that specialist. What would become of the poor men with ulcers and boils, or diarrhœas and fevers? I believe that all hospitals and hospital ships should have the services of specialists, such specialists being members of the M. R. C.; that each hospital should have a bacteriologist and a trained roentgenologist, just as civil hospitals have; that these men should be trained in their specialties and paid accordingly, but should not be in the Medical Corps, or required to do any other duties. I have had experience with so-called specialists in the Navy, and the result of that experience has demonstrated

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to me that most of them are unfit for the general duties of the service, and many of them have had so little practice in their specialties that their judgments are not to be relied upon. These remarks are absolutely general, and refer to no particular person. At the same time, I have known some rare exceptions of men following a specialty who were not only eminent in their specialty, but absolutely dependable in any line of work to which they were ordered, splendid, resourceful, intelligent, broad minded and brilliant men. Such, however, must necessarily be the exceptions, as it is beyond the power of the average man to attain eminence in all things.

It is therefore my opinion, gained by an experience of twenty-seven years in the Navy, serving through all the grades and duties from a junior assistant to command of a hospital, that the naval medical officer is a specialist in the highest sense of the word, that too much is already expected of him outside of his specialty, and that to introduce into that specialty other specialties, each in itself a life work and study, is inadvisable, and absolutely impracticable in the maintenance of an efficient and homonegenous corps.

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The Influence of Immigration on the Dissemination of Tuberculosis; and the Importance of Detecting the Disease. From a Public Health Standpoint

By F. A. Ashford, Passed Assistant Surgeon, U. S. Public Health Service.

IN the consideration of such a subject, the question naturally arises: In what way do the immigration laws deal with the cases certified by the medical officer, as coming under the term tuberculosis? Naturally, this is a very vital question, for the reason that, no matter how painstaking the medical examination of arriving aliens, the certification of such cases would have but little effect in safeguarding the country against this insidious disease, if the law itself were framed in ambiguous language, or left the final decision of the case to those having no medical training. Fortunately, the law is very specific in the case of aliens falling under the above-mentioned disease. The portion of the law dealing with tuberculosis reads as follows: (Section 2) "The following classes of aliens shall be excluded from admission into the United States: Persons afflicted with tuberculosis or with a loathsome or dangerous disease," etc.

Rule 17 (under Section 3): "No appeal lies where the decision of the Board of Special Inquiry, based solely upon the medical certificate, rejects an alien because he is afflicted with tuberculosis," etc. In order that the action of the law may not be too harsh, provision is made, in Subdivision 2, Rule 19, for the care and treatment of certain cases suffering from tuberculosis, but a sufficient bond must be furnished and a short period of treatment, only, is contemplated. The law does not consider that such treatment in a hospital constitutes a landing. Under the provisions of the old immigration law, tuberculosis was not specifically mentioned as being in the excludable class, hence appeals from the decisions of the Board of Special Inquiry, might be legally sustained, and persons so afflicted, landed. However, at the present time the wording as already quoted, is perfectly clear. The medical examiner is further guided in respect to placing cases of tuberculosis in the excludable class of diseases by "The Book of Instructions for the Medical Inspection of Immigrants," prepared by the Surgeon-General of the Public

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Health Service, which interprets the law to include only the following conditions:

1. Tuberculosis of the respiratory tract.
2. Tuberculosis of the intestinal tract; and,
3. Tuberculosis of the genito-urinary tract.

To confirm the clinical finding in the pulmonary form, a slide is kept of the sputum, properly labeled, for each case. The same may be done in the urinary sediment in cases where tuberculosis of the bladder is suspected. The cutaneous tests and those by inoculation hardly come within the sphere of practicability, on the score of lack of time, and also popular prejudice, as well as being open to certain fallacies, known to all medical men. According to decision 116, the Supreme Court rules that a person coming from a foreign country for medical treatment, not to acquire permanent residence, but for a temporary stay, is not an immigrant in the strict sense of the term, and hence may be landed, with certain restrictions, designed to make his travel safe, from a public health standpoint. It is necessary, therefore, to have a clear history of such cases, in order to estimate the danger to others. The degree of contagion is influenced, of course, by the stage of the disease, whether accompanied by much coughing and expectoration, by the education of the traveler, in the matter of cleanliness and personal hygiene, and in the subsequent treatment of the compartment occupied by the person so afflicted.

In the fiscal year ending June 30, 1913, out of 1,574,371 aliens inspected in the United States, its dependencies and Canada, 161 were certified for tuberculosis. In the previous year, out of 1,143,234 aliens inspected, 122 were so certified. Under the conditions surrounding the examination of immigrants at many of the places where this work is carried on, this is not a poor showing. In table 18 of the Annual Report of Immigration for the fiscal year, a surprisingly small number have been deported for tuberculosis after landing, because coming within the three years' immgiration clause. In the last Annual Report only twenty-six such cases are reported, five of these being from Southern Italy; the other countries given in the list, furnishing one or at most two cases each.

Sir William Osler, speaking before the Sixth Annual Conference of the National Association for the Prevention of Tuberculosis at Leeds, England, on the subject: "One Hundred Years of War Against Disease," said that 60,000 people now alive were

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unchangeably doomed to death from tubercular disease within five years, but that in the past fifty years the mortality had been reduced one-half. Continuing, he said: "In the wonderful campaign in which we are engaged, we have tracked the enemy, and we know that his strongholds are poverty, bad housing and drink."

It is the last part of this statement, I believe, that has an important bearing on the prophylaxis of tuberculosis, from the standpoint of immigration. If we turn for a moment to a study of the environment of a large class of the aliens coming to our shores, especially those coming from Russia and Southern Italy, we find these very conditions, especially the two latter, very prevalent. Even supposing an immigrant healthy, to all intents and purposes, when he lands, the majority will segregate themselves according to race, and adopt the manners and customs of their fatherland. To many of them, the crowding and bad housing are conditions which they view with indifference. Add to these predisposing conditions, especially among the Italians, the sudden variations of temperature and humidity, together with the deplorable industrial hardships, combined with homesickness, and it requires no stretch of imagination to realize that the seeds of disease are being constantly sown by the acquisition of the classes of the aliens coming to our shores.

The limits of my subject will not permit me to discuss the methods which should be used to better the conditions under which these people live, when they are incorporated into the life of our large cities and towns. Much has been done, and a great deal remains to be accomplished in respect to bettering these insanitary conditions. However, I am trying to emphasize the danger of permitting even incipient cases of tuberculosis to land and mix with these people, who live under such conditions. I might carry this a step farther and state the importance of holding back those whose physical development or condition would render them an easy prey to this insidious disease. That it is not a theory that cases landed often are tubercular or become so soon after landing, may be easily demonstrated by anyone visiting our general hospitals, although many, perhaps the majority so afflicted, never apply for hospital treatment, and hence, are not reported as public charges, because of their sickness. This would account for the small number deported in the preceding figures.

Conditions such as "rickets," chronic inflammation of the cervical lymphatics, adenoids, measles, whooping cough, enteric

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fever and other debilitating diseases, combined with lack of proper care and attention, predispose to tuberculosis, and should be so certified that the Board of Special Inquiry will have a clear idea of the prognosis of such cases and so may have a written medical opinion to support them in case the applicant is debarred on physical grounds. Persons having physical defects which limit the respiratory capacity, who are engaged in or intend to follow any of the trades or occupations known to have a prejudicial influence on the disease, are particularly undesirable additions to our national stock. Where necessary, the medical certificate may be amplified by the medical officer rendering same, either orally before "The Board," or in the form of a supplemental certificate. It is my firm belief that, with painstaking effort and better co-ordination between the medical officer and the various boards of special inquiry, a larger percentage of persons, who are likely not only to become public charges but foci of infection, will be excluded. Thus a great step forward will have been taken toward reducing the incidence of tuberculosis. Of course the heavy fines imposed on the steamship lines bringing cases of tuberculosis make it desirable that the medical examination at the foreign port be as searching as possible. Undoubtedly the return of cases of tuberculosis to the countries from which they were deported, and those subsequently infected during their sojourn in this country, has spread the infection abroad where the disease was not formerly present to any extent. This is the opinion of the surgeon in command at Boston, Mass., as embodied by him in the following paragraph from a report, which also lays emphasis on the importance of detection of cases of tuberculosis, in the medical examination of arriving aliens: "Among the aliens less than three years in this country and reported to the immigration authorities as public charges from this disease, the proportion of such cases in which even prior causes are claimed, is surprisingly small. It would seem that persons with pulmonary tuberculosis, the signs of which are likely to be recognized early, do not tend to emigrate. Then, too, a large part of our present-day immigration is drawn from districts where pulmonary tuberculosis is comparatively uncommon. These districts are, however, becoming steadily infected by persons who are constantly returning back home after contracting tuberculosis in this country, and there are already indications that the detention of cases of incipient tuberculosis is going to become a problem of increasing importance in the medical examination of arriving aliens."

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Cases of tuberculosis, undetected at the foreign port, often undoubtedly become a source of contagion to those around them. Especially is this true in the steerage of the large steamship liners, where crowding and insufficient air space are often present. The same applies to some of the smaller vessels, where filth is also added. These "carriers" are practically never isolated unless the condition is brought to the notice of the ship's surgeon, and they may spread the infection to those who are susceptible from any cause, such as catarrhal conditions, which are frequently present on shipboard, vitiated atmosphere, infectious diseases, etc. Of course, the true condition of such persons is never detected unless a period of observation, which is perhaps instituted for some other reason than because disease is suspected, reveals the true state of such an individual. These infected people land and become subjected to the influences already enumerated, and drift along in a poor state of health, so forming links to an endless chain of infection. I have, personally, inquired into the history of a number of cases suffering from tuberculosis, and, in not a few cases, have elicited a history similar to the foregoing. In some cases the information was volunteered by the patient. If cases, brought to the notice of the ship's surgeon, suffering from cough with a suspicion, from subsequent examination, of tuberculosis, were reported by him to the medical examining staff, before the line inspection of the immigrants was begun, together with the names of those probably exposed to contagion, it would be of value to those making the medical examination at the port of arrival. With such a history a short period of detention might result in the discovery of incipient cases of tuberculosis. The medical officers on the Canadian border cannot avail themselves of this period of observation, as there is no place of detention for the purpose of observation, and recourse must be had to deferring the case for subsequent examination. At ports like New York, Boston, Baltimore, etc., with proper hospital facilities, this is quite feasible. Medical treatment is also given at these places by the Public Health Service.

A number of the medical officers are not supplied with instruments of precision, such as the microscope, hence they hesitate to place many conditions which they find, in the mandatory or excludable class. In such cases, the doubt being expressed of the exact nature of the malady, on the face of the medical certificate, perhaps leading to a rejection of the applicant, will in many cases lead the aliens to seek admission at some place where the medical officer is properly equipped to make a positive

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diagnosis. In a number of instances it is not necessary to find the bacilli in the sputum, and the medical officer relies on the history of the case, clinical signs, and corroborative evidence of physicians of recognized standing who have attended the case. It is well known, of course, that some patients in this disease have little or no cough or expectoration. A few, who are familiar with the operation of "the law," will not present a specimen of sputum for examination by the medical officer. In these latter cases, where no history is obtainable and but few physical signs are present, the exact findings with the reasonable suspicion of the nature of the case, should be stated on the medical certificate rendered to the Board of Special Inquiry for their guidance. These cases, even when passed, may then be kept track of, especially if they apply at other stations at some subsequent period. Each of the larger immigration stations is equipped with a bacteriological laboratory where accurate knowledge of infectious processes may be obtained. At a port like New York, where as many as 5,000 immigrants are passed in one day, the saving this means to the officers who carry on the primary inspection can be readily seen. Cases suspected of diseases where it is necessary to have the clinical findings corroborated by bacteriological methods, and those requiring observation, are sent to the hospital with a short history of the case. The more delicate tests may here be carried out with safety. Cases recovering from diseases likely to be followed by tuberculosis, are carefully watched, for early signs of the disease.

The responsibility of the ship's surgeon has already been touched upon, but his best efforts are greatly handicapped by the overcrowded condition of many of the vessels carrying passengers. Important as the medical inspection of aliens is, it is also necessary to keep track of the "missed" cases, and those who have become public charges suffering from tuberculosis. This information is ascertained from the statistics contained in the reports of health officers, boards of health, etc. The health officer in turn receives reports from the physicians who are in attendance on cases of tuberculosis, and who are directed by law to fill out the required information on blank forms furnished for the purpose, giving the name, age, nativity, sex, color, occupation, place last employed, and previous address, this information to be reported within twenty-four hours (laws of Colorado), and in the case of North Carolina within seven days. These cases, according to law, are deportable within three years after landing.

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Regarding the importance of reporting cases of disease, I would quote from a pamphlet by Louis I. Dublin, statistician of the Metropolitan Life Insurance Company. He says: "The life-saving campaigns of the last few decades have borne fruit. The death rate has been lowered and the average span of life correspondingly lengthened. Deaths from certain causes, especially from typhoid fever, smallpox, the infectious diseases of childhood and tuberculosis, have been reduced. The amount of sickness, on the other hand, has not been controlled to any appreciable degree. There is still too much sickness among us. Indeed, there are those who, with some authority, maintain that illness has actually increased in spite of all the saving in mortality. The next twenty years must, therefore, see our activities in health work directed especially to the control of disease. If we avail ourselves of our present knowledge of sanitary science, we can reduce the incidence of illness fully as much as we have already cut down our death rates." After mentioning the growth of the number of diseases, required by the Board of Health to be reported, he says, regarding tuberculosis: "With the development of the germ theory of disease, the reporting of tuberculosis was included, first on a voluntary, later on a compulsory basis."

One of the grimmest specters which we have to face, in this age of civilization, is *Disease,* which destroys more lives than *War,* and, as it has been estimated that 10 per cent of all deaths are attributable to *Tuberculosis,* the importance of methods used for its control, are at once apparent. It is to this end that attention has been directed to a subject as yet only in its developmental stage. In studying a disease as widespread as tuberculosis, every possible source for its propagation, must be considered. In writing the foregoing article, other means for inhibiting its spread have not been forgotten, nor would the author minimize other means for attaining the same end. Certainly the highest aim of the physician is in the field of preventive medicine.

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A Practical Method of Embalming on Shipboard*

By Edward Francis, Surgeon, U. S. Public Health Service.

THE subject of embalming is one which affects the public health in the transportation of bodies dead from communicable diseases; the custom of burial at sea had its origin in the inability to preserve the body until the end of the voyage; people traveling or residing in foreign countries, or detailed there by their home Government, should, in case of death, be so preserved that there would be no hesitancy in returning the corpses. On the death of men of great note—as heads of governments—it is often necessary to preserve the body for weeks or months. There should be no difficulty whatever in doing so. The instances which I have cited call for perfect embalming, the preservation of all parts of the body and their complete sterilization. The proper fluid in right amounts must be properly injected in definite locations.

The character of the fluid is of much less importance than the manner of its injection. For instance, if a body be injected through but one artery, say the right brachial towards the heart, what assurance is there that the right arm below the site of injection will receive any of the fluid, or that the head will get a sufficient amount to preserve it, or that the opposite arm or the legs will get their proper proportion of fluid? The chances are that the amount will vary in different parts and some part perhaps will get none at all.

When the fluid is introduced into the circulation at but one place, the operator takes great chances against a uniform distribution of fluid throughout all parts of the body, consequently the parts which receive the least fluid will be the first to show signs of decay.

In order to get a uniform distribution of fluid, it is usually necessary to make six injections, i. e., into each brachial artery toward the extremities, into each femoral artery toward the extremities, into one common carotid artery toward the head and into the same carotid toward the heart. In each instance, when injecting the brachial artery, or the femoral or the carotid artery upward, fluid is immediately seen returning through the veins. In this way the operator has the assurance that the fluid actually

* Read at the Twenty-third Annual Meeting of the Association.

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bathes all the tissues of the extremities or head and he can rest assured that the parts will be preserved.

To so embalm a body that it will withstand a tropical sun, or a long sea voyage, or that it may be kept in state for weeks or months, or that it may be harmless on account of communicable disease, the embalmer should inject the arterial system in the six locations indicated with a total amount of fluid equal to 15 per cent of the body weight.

The maximum amount of fluid which in practical embalming it would be desirable to inject into the arteries would depend upon circumstances. It is an easy matter to over-inject the head or extremities so that the face and hands are puffy and unnatural. In many instances the effects of over-injection are not objectionable, particularly if the casket is not to be opened or if a long time is to be consumed in transportation before the body is viewed at its destination.

The technique of injection is a matter of the greatest importance. As we are concerned with preserving all parts of the body in an equally good condition, we must satisfy ourselves that the fluid reaches every part of the body in an amount sufficient to preserve it. There is no objection to a multiplicity of injections. A single injection into but one artery does not produce the widest possible distribution of the fluid to all the remote parts of the head and extremities. I do not deny that in temperate climates bodies are injected constantly through a single incision with a small amount of fluid and that the bodies are preserved for two or three days until burial. If, however, a body is to withstand the high temperature of the tropics, its indefinite preservation will depend upon its complete sterilization.

The formula of an embalming fluid which was devised at the Hygienic Laboratory of the Public Health Service, and which has been found stable in composition after standing two years and eight months and which has proven effective in preserving human subjects exposed for two months to a temperature of 98 degrees Fahrenheit after being embalmed as follows:

Formalin (40 per cent formaldehyde)	12.5 cc.
Borax (sodium borate $Na_2B_4O_7$)	5.0 grams
Water sufficient to make	100.0 cc.

NOTE.—Should the strength of the formalin be below 40 per cent, its amount must be proportionately increased, using, for example, 15 cc. of formalin of only 33⅓ per cent strength.

The above formula is based on the idea that formaldehyde is the best preservative and disinfectant which can be used in an embalming fluid. It constituted the essential ingredient in nearly

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all commercial fluids analyzed at the Hygienic Laboratory. One very serious objection to formaldehyde is that it bleaches muscular tissue to an ashy gray. In the course of our investigation, this objection was found to be overcome by adding an alkali to the formaldehye solution, thus changing its reaction from acid to alkaline. In the selection of the proper alkali it was found however, that the common alkalis caused a deterioration of the formaldehye after several weeks' standing. On account of the instability of formaldehyde in the presence of sodium hydrate, potassium hydrate, ammonium hydrate, sodium sulphite and sodium carbonate, they all had to be abandoned; whereas borax was found to furnish the desired alkalinity without causing more than the very slightest deterioration of the formaldehyde after having been made up almost three years. Borax has the additional advantage of being in itself a preservative.

EQUIPMENT.

The injection apparatus consists of a three-gallon bottle, through the rubber stopper of which passes two glass tubes; one tube extends to the bottom of the bottle and affords an outlet to the fluid which is carried by a rubber tube to the glass canula; the other tube is connected by rubber tubing to a pump—a bicycle foot pump is very effective.

SUMMARY.

The composition of the embalming fluid is given above. Inject into the arterial system an amount of fluid equal to 15 per cent of the body weight, a pound being sixteen ounces, or 453.59 cc.

Inject each femoral artery toward toes with.....	2%	body	weight
Inject each brachial artery toward fingers with.....	1%	"	"
Inject one common carotid artery toward head with	2%	"	"
Inject same common carotid artery toward heart "	7%	"	"
Total amount of fluid.....	15%	"	"

It is not necessary to withdraw blood from the veins, although there is no objection to doing so. It is not necessary to inject fluid into the thoracic and abdominal cavities. Autopsied bodies are to be treated in the same way with the addition of a liberal amount of cotton and embalming fluid to the cavities of the abdomen, chest and skull. Plug the anus, mouth and nostrils with cotton soaked in the embalming fluid. Wash the entire body, including the face, ears and hair with the fluid. If desirable to keep the body for a long time, drying can be prevented by rubbing vaseline liberally over the entire body followed by bandaging same.

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Thirty cadavers were injected in accordance with these rules and after injection they were kept in a room at 98 degrees Fahrenheit for periods varying from one month to seven weeks; on the dissecting table, these bodies excelled in the matter of preservation, firmness and natural color of the tissues.

Finally in practice it will be found that the amounts of fluid apportioned above to each part of the body will often be increased or diminished owing to circumstances; if the eyes, lips or one side of the face becomes over-distended, the injection should cease; sometimes fluid cannot be forced into an artery, due perhaps to clots; with practice one learns to disregard actual amounts and to stop the injection of an extremity when it is apparent that the fluid has circulated well from the arteries, through the capillaries and back into the veins.

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Reprints and Translations

The Treatment of Tetanus*

AT a recent meeting of the Medical Society of London an interesting discussion was held on the prophylaxis and treatment of tetanus, a subject of great importance at the present time when many wounded soldiers of the Allied Forces in Belgium and France have been suffering from this disease. Every speaker was well acquainted with his subject, and those who were present heard the very latest views of the mode in which tetanus is brought about, and first-hand opinions as to the best way of dealing with it. It was only to be expected in so difficult a subject, and one where practical clinical experience has been on the whole so limited, that these opinions did not always coincide in detail.

The debate was opened by Captain Dennis Embleton, who had had opportunities both at the 3rd London General Hospital and at Netley of observing a series of cases presenting a varied picture of the disease. He dwelt on the improbability of any localization of the tetanus organism, and considered that carbolic acid, even pure and applied two minutes after the infection had been produced, was ineffective, while by damaging the tissues it might be dangerous. He held that the value of antitetanic serum for prophylactic purposes had been definitely established, and that its administration in established tetanus had been proved experimentally to be of value when the subcutaneous route of administration was the safest. Professor F. W. Andrewes, who followed Captain Embleton, pointed out that it was by no means every wound, exposed to the possibility of infection by tetanus, that was really likely to be infected. The main source of the bacillus is to be found in the intestinal excretions of the ox and also especially of the horse, and therefore the mud of the roads is extensively impregnated with this germ; so, too, all soil that has been treated with stable manure must contain very many of the organisms. Dr. Andrewes described some experiments performed in this connection; he had taken some of the earth from

* Reprinted from *The Lancet* of December 12, 1914.

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his garden and had inoculated a number of mice with minute portions of it, and though in some of the cases the amount of soil used was extremely small, yet every single mouse had become affected with tetanus. However, though garden soil teems with this bacillus, it is extremely rare for any gardener to suffer from tetanus, though daily he must have superficial abrasions with which the bacillus must have been smeared. It appeared, then, that superficial lesions were very unlikely to lead to the development of the disease, and this Dr. Andrewes was inclined to attribute to the fact that the bacillus of tetanus was anaerobic, so that free exposure to the oxygen of the air prevented the development of the organism. This free exposure to the air was, in his opinion, far superior to the employment of hydrogen peroxide or of potassium permanganate. This view did not commend itself to all the speakers; while Captain Embleton had previously laid great stress on the damage of the surrounding tissues as an important factor in the development of the germ, and especially in the associated inoculation of septic organisms.

As to the treatment, all the speakers agreed that the use of antitetanic serum far surpassed other methods that have been devised, and that hypnotic and sedative drugs held a very secondary place in treatment, though they might be useful in relieving pain, in allowing the reception of food, and in inducing sleep. It was also agreed that the serum should if possible be given prophylactically, but at once the difficulty arose that it was practically impossible to administer the serum to every wounded man, for the available stock of serum was utterly insufficient. How, then, can the suitable cases be selected? It seems that deep wounds are more likely to be affected than those which are more superficial, but some further differentiation is necessary, and Dr. Andrewes suggested that the demonstration of the presence of the Grampositive bacillus of Welch was very suggestive of the presence of the bacillus of tetanus, and so far as he has used this test it appears to be well founded. By some such method the number of cases to which the serum should be given prophylactically may be much reduced. When the dose of serum has been delayed for one cause or another till the symptoms become manifest its value is markedly reduced, but it may be given here with good effect if the dose is greatly increased. The channel of administration has also to be determined. It is curious to note that while one observer favored the subcutaneous route another considered the intravenous method the best, and a third speaker held that the serum should certainly be injected into the

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subarachnoid space of the spinal cord; and with this last view we are inclined to agree if a prompt action of the serum be desired. The intracerebral injection found no supporter, though it was admitted that it might be employed in very serious cases as a last resource The intracranial method must do immense damage to the structures of the brain, unless the quantity of fluid injected be limited to a few drops. It was clear from the whole of this very interesting debate, as well as from the differences of opinion upon the method of administering the accepted remedy, that our knowledge of the therapeusis of tetanus is still in a state of flux. We have in the antitetanic serum an agent of a high degree of potency. Further experience will show us how best it may be used, but at present it is abundantly clear that in its early prophylactic use lies the best hope of combating a deadly disease.

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Editorial

THE WORK AND NEEDS OF THE PUBLIC HEALTH SERVICE

The Public Health Service is coming into its own. Hampered as it was for many years as an appendage to the Marine Hospital Service, neither civil nor military, its work restricted by meager appropriations, it has nevertheless gone steadily forward under the able leadership of such men as Hamilton, Wyman and Blue, until by act of Congress it has now attained the dignity which is its due. It still holds the anomalous position of an appendage of the Treasury Department, but shares this misfortune with other valuable and extraneous services, like the Revenue Cutter Service, the Light House Service and the Life Saving Service.

Notwithstanding its grievous limitations the United States Public Health Service, by the excellence of its work, has climbed steadily until it has now reached the top of the ladder of sanitary efficiency, and is known and respected the world over.

The Report of the Surgeon General for the Year 1914 details very briefly and without flourish of trumpets the protean energies of this Service which is devoted not to the healing of the nation but to the protection from disease of those within its gates.

The list of the various activities of this Bureau alone would be too long to enumerate here, but they may be grouped under the following seven divisions: (1) Scientific research and sanitation, including studies of beriberi, diphtheria, goiter, hook worm, smallpox, pellagra, trachoma, tuberculosis, occupational diseases and industrial hygiene, rural sanitation, et cetera; (2) foreign and insular quarantine; (3) domestic or interstate quarantine; (4) sanitary reports and statistics; (5) marine hospitals and relief; (6) personnel and accounts; and (7) miscellaneous.

The overwhelming importance of the first division is shown by the amount of space, one hundred and eighty pages, devoted to it in the annual report which with the index comprises only three hundred and fifty-seven pages.

The personnel of the Service, while of most excellent quality,

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is far too small for the enormous work which comes under its supervision and care. During the last fiscal year twenty-three additional assistant surgeons were appointed, but notwithstanding this increase, the employment of 239 acting assistant surgeons was necessary.

An important factor in the educational propaganda conducted by the Bureau is the weekly publication known as *Public Health Report,* which now has a circulation of about 11,000 copies. The five departments which make up this publication give the current prevalence and geographic distribution of the preventable and controllable diseases in the United States; sanitary legislation showing state laws and regulations; city ordinances and regulations and court decisions on matters pertaining to the public health; the prevalence and geographic distribution in foreign countries of diseases quarantinable in the United States; matters of interest to health officers, largely educational in nature and supplements which are issued as monographs relating to personal and community hygiene and intended for general distribution. Of these latter, 10 appeared during the year on subjects varying from the summer care of infants to the treatment of syphilis and sanitary conditions among the Eskimos, interspersed with such lighter topics as shower baths for country houses and what the farmer can do to prevent malaria.

The needs of the Service as outlined by the Surgeon General are an increase in the number of trained officers for federal public health work, additional clerical assistance in the Bureau at Washington, an additional building for the use of the hygienic laboratory, an appropriation for the employment of persons in the collection of morbidity statistics, and the stimulation and encouragement of the educational propaganda for public health.

We said at the beginning, and advisedly, that the Public Health Service is coming into its own. It cannot arrive, however, in our opinion, until its independence is assured by its divorce from the Treasury Department and its establishment as an independent department of the Government.

WHERE DOES THE MEDICAL CORPS COME IN?

At this time when the world is filled with wars and rumors of wars, that small portion of the American people which is not occupied in making a profit from the nations at war, is engrossed with the thought, "In what condition of preparedness is the

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United States should she be drawn or forced into the turmoil of war?" The prevalent uncertainty regarding not the efficiency of the Army which we have, but the physical question of its strength, if opposed to an army as well prepared and numerically far exceeding our own, must give us pause. Even Congress has been so aroused to the possible military necessities that a number of bills have been introduced to meet this crisis. One of these calls for an increase in the officers of the Army of 1,000, or practically 20 per cent. It does not state how these thousand new officers are to be apportioned. If precedent be followed, they will be assigned to the fighting forces and little or no increase will be made in the officers of the sanitary troops on whom the Army must depend to keep its men in fighting trim and to maintain the maximum of physical efficiency. To maintain the proportion that at present exists between the officers of the Army as a whole and the commissioned personnel of the Medical Corps, about 125 of the additional officers provided for by the bill just mentioned should be medical officers. In every war of modern times there has been a deficiency in the sanitary personnel. Let us gain wisdom from our past mistakes and see that our good little army is provided with the means of maintaining its efficiency.

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Current Literature

FRANCE

Bulletin de l'Académie de Médicine

December 8, 1914.

1 Report on the Authorization of Various Vaccines.

2 Report on a Work of Dr. Boquel A. Netter Concerning the Treatment of Twenty-four Cases of Tetanus Among Wounded Soldiers. Achard.

3 *Wounds of War. Henri Hartmann.

4 Therapeutic Injections of Old Cultures. Pierre Delbet, Beauvy and Girode.

5 Presentation of a Case Treated by Delbet's Vaccine. Henri Hartmann.

6 Functional Weakness of Nervous Origin Among Wounded Soldiers. Paul Sollier.

3. **Wounds of War, by Henri Hartmann,* the author, modestly says is a brief statement of what three months of war surgery have taught him. The first fact which impressed him was the large proportion of wounds produced by artillery; the second, the great frequency of fractures. The mortality he finds has been 9 per cent. There are two frequent causes of death which are rarely found in civil practice, namely, tetanus and gaseous gangrene. For tetanus, treatment by injection of preventive serum, if applied early enough, may save. He believes intersticial injections of no effect. The sole remedy is to disinfect the initial seat of the trouble, opening up all affected parts and having recourse to amputation when necessary. Dr. Hartmann and his colleagues have scarcely at all used tincture of iodine as a dressing as it does not agree with war gunshot wounds. Of wounds which did not receive attention until twenty-four hours after receipt of injury, almost the total number were infected. Dr. Hartmann lays great stress upon the value of the radioscopic examination of all the wounded immediately upon their arrival at the hospital. This examination is rapid, simple, inexpensive and of much greater value than the taking of radiographs. By placing the patient before the screen and making the wounded limb execute certain movements foreign

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bodies may be accurately located. Whether the foreign body moves with the muscle which contracts the limb; whether in passive movements it is displaced at the same time as the bone, are means of locating it, as is also the finding of two axes which cross at the location of the foreign body and determining their situation with regard to the skin. The parallel displacement of the image of the foreign body and of an exterior guide mark is also of value. The processes are simple but greatly accelerate the location and extraction of the foreign body.

GERMANY

Deutsche Militärärztliche Zeitschrift

7 The Means of Transporting the Disabled in the Greek Army in the Balkan War in 1912-13. Torsten Rietz.

8 *A Pouch for Medical Officers (for Maneuver and Field Service). Teuscher.

9 Course of Instruction in the Dental Treatment of Gunshot Fractures of the Jaws and in the Application of Jaw Protheses. Lincke.

10 A Case of Fracture of the Os Pubis and Separation of the Symphisis in Consequence of Muscular Action. Herhaus.

11 A Case of Hemorrhagic Typhoid Fever. Wunderlich.

8. **A Pouch for Medical Officers, by Teuscher,* is an effort to solve the ever vexing problem of the personal, professional to $12. He describes the conditions of an ideal pouch, an ideal which is simply unattainable, because if sufficiently strongly built to protect against dust, rain and breakage the pouch cannot be armamentarium in the field. The author believes the greatest fault of all pouches so far recommended is their expense—$10 small. Teuscher resorted to a device which is essentially the map-case worn by the German army officers, with the addition of a leather compartment for medicines, and the protection of a lock for each part of the case.

The cost of the pouch is prohibitive for many surgeons, both in Germany and the United States, because in neither country have officers of the Medical Corps of the Army any official order for such equipment. It is, however, a recognized fact that the orderly pouch carried by the physician's orderly is often either unavailable or inefficient, or both.

Our own orderly pouches are clumsy, heavy bags carried over the shoulder, but filled with valuable surgical material. There is nothing in the regulations about surgeon's field equipment outside of the orderly pouch.

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In Germany an attempt has been made to devise a surgical case using the leather case worn by officers for their field glasses as a container. This is as ideal a size as anyone could wish, and though when filled with surgical equipment it is undoubtedly heavier than when containing the field glass, yet it is easily carried on the person.

In THE MILITARY SURGEON for February, 1914, there is the description of a tan leather field case for army surgeons. The exact dimensions of this case are 8x4x2 inches. Teuscher's case is almost twice as wide, and with the addition which is fastened to one side of the case, nearly twice as thick. A modification of a later date places the smaller case into the interior of the larger case, thus reducing bulk. Hypodermic tablets, bottles, bandage and a roll of instruments—the author is not specific, apparently leaving the choice to the individual—form the contents. The price of this case is $3. The case is so made that it can be fastened to the saddle or to the uniform belt, as needed. As a whole, the case does not seem to be an improvement over other models.

RUSSIA

Woyenno-Medicinski Journal

February, 1914.

12 Solution of Quinin and Urea Hydrochlorid as a Local Anesthetic. J. P. Wlassow.
13 A Case of Gunshot of the Aorta with the Sharp-pointed Bullet. A. R. Mikhno.
14. A Protector in Amputations of the Extremities. P. N. Ssuyssin. Diathermia. I. Th. Kotovich.
15 Criminals and Patients Sent for Observation to the Psychiatric Department of the Riga Military Hospital. I. W. Borowikov.
16 Barrack Buildings. M. I. Lyebedev.
17 Description of the Disinfection Chamber of Jung-Buywid. K. T. Glukhov.
18 *The Water Supply of the City of Lunéville. Karaffa-Korbutt.
19 Isolation of Soldiers Afflicted with Trachoma. N. I. Lobassov.
20 *A Case of Chancroidal Bubo Without a Primary Lesion. I. N. Shendrikowski.
20½ Erythema Scarlatiniforme Desquamativum Recidivans. J. P. Wlassov.

18. **The Water Supply of the City of Lunéville, by Korbutt.* While on a detail for study abroad, the author traveled to Lunéville, a French city in Lorraine, with a view of studying the water supply. This town has about 25,000 inhabitants and a garrison of about 11,000 troops and has suffered from several typhoid epidemics. Formerly the water was secured from the

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small river Meurthe, but the water was polluted from the unchecked inflow of sewage from the capital of Lorraine—Nancy. The community accused the garrison of responsibility for the epidemics, and then the War Department, recognizing the real cause, told the municipality to secure good water for the entire community, otherwise the garrison would be removed. As the loss of the garrison would have meant economic loss to the town, a sanitary council was given an appropriation of 200,000 francs ($40,000) to render the water potable. The interest of the matter lies in the fact that for the purification of the water ultra-violet rays were utilized on a large scale. A station has been established yielding 7,500 cubic meters of water, thus affording every inhabitant 300 liters of water every twenty-four hours, which is ample. The water itself is obtained from the River Meurthe, but previous to sterilization by the rays undergoes filtration by the Peuch-Chabal system. This is accomplished by the Westinghouse apparatus. While the filtration and sterilization have been in function too short a time to permit the formation of positive conclusions, yet nothing can be anticipated from the scientific tests but the very best results, and the author points to the great advantage of co-operation between the military and civil administrations. Diagrammatic sketches and tables show the appliances and the amount of sterilization produced by the combined system.

20. **A Case of Chancroidal Bubo without a Primary Lesion, by Shendrikowski,* is an interesting addition to the literature of venereology in so far as the claim is made that chancres may develop in the inguinal region via the lymph channels without a distinct primary lesion. The case concerned a young sailor who saw a slight and superficial erosion on the glans penis three days after exposure. He continued to do heavy manual labor (loading of coal on a battleship), but was taken so sick after that that he had to seek the services of the marine hospital. Gradually suppuration necessitated incisions of the enlarged lymph glands in the inguinal regions, but little pus was secured, the wounds assuming the character of chancroids. The primary erosion was treated with lead water only and disappeared without any evidence of chancroid. The wound-chancroids were treated by applications of hg. sol. (1:1000) and the patient recovered.

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AUSTRIA

Der Militärarzt

21 *Organization of the Sanitary Service in the Field. (Concluded.) Stabsarzt Maximilian Richter.
22 Treatment of Luetics in the Garrison Hospital in Mostar During 1913. Dr. Binar.
23 The Valuation of Physical Ability and Service Ability after Piguet's Method. Dr. Gustav Pollak.

21. **Organization of the Sanitary Service in the Field, by Stabsarzt Dr. Maximilian Richter.* The last Balkan campaign has aroused a good deal of professional and popular discussion regarding the sanitary field service, and the general consensus of opinion is that the sanitary precautions for a war are qualitatively as well as quantitatively inadequate. This sad conclusion has caused much criticism from certain non-professional quarters, which seems especially justified since the nation can be said to be a people in arms, and the welfare of the wounded and sick should be of prime consideration.

But right here it must be stated that the government cannot possibly undertake measures on a scale large enough for coping with every possible contingency.

While we have available statistical data of gravely and slightly wounded which can be transported in a sitting or recumbent position, or not at all, based on former experiences, one can never rely on them, and even in the war games only averages are assumed to represent imaginary conditions.

One cannot but admire the exhaustive preparations which had been made by Japan for a possible war in every direction; nevertheless in the Manchurian campaign many gravely wounded had to wait many hours until help could be given them.

The best organized sanitary service will not suffice for an army suffering enormous losses. This fact led to the creation of voluntary aid organizations (Red Cross) by the people.

Nevertheless the sanitary organization cannot rest contented with its present achievements. To stand still means to retrogress. And while the fighting efficiency of the combatants is the primary and principal care of the military authorities, after the battle the wounded must come to their own.

The organization of the sanitary service in the field will have to be measured according to the time needed to care for all wounded after the battle.

An extensive apparatus functioning slowly is unsatisfactory; hence the need of thorough organization.

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In Austria-Hungary an army corps, consisting of three infantry divisions, has in addition to the divisional sanitary stations nine field hospitals with a total capacity of 1,800 to 2,700 beds, six mobile reserve lazarets (capacity 1,200 to 1,800 beds), three field infirmaries with a capacity of 1,500 beds. This does not take into consideration aid and dressing stations.

If we deduct a mobile reserve lazaret and an infirmary established at the time of concentration, and which will rarely be at disposal later on, there remains a capacity of 2,800 to 4,200 for seriously and 1,000 for slightly wounded—corresponding to about 6 to 7 per cent of the entire strength of an army corps.

So far we have only taken into consideration the wounded; now 3 per cent must be added for the sick, which means that they will occupy 2,100 beds every day, and even the best system of evacuation will not render it possible to reserve all beds for the wounded only.

Quantitatively the field and reserve lazarets will not be sufficient. Organization to quickly provide for the patients must consider personnel, quality of equipment, quantity of transport and relation of one institution to another.

The separation of so many kinds of field institutions with their variable equipment and transport means represents the most important cause of their clumsiness as service in war.

Uniform equipment of the diverse field organizations is not a new demand—one needs but point to the French organization—but this is imperative for *all mobile sanitary field institutions.*

Instead, then, of having so many institutions of variable names and equipment, each corps should have so and so many sanitary units, which can be interchanged, united or separated, as needed.

In planning an organization along such a line one must separate slightly wounded in need only of food and refreshment from such who have suffered severe hemorrhages. The latter are seriously wounded.

To enable the units to dispose of the numbers of wounded that will reach them after proper separation at the front, good and quick transport is needed. The author demands *separate* transport organization from field institutions.

(In our service this would mean separation of ambulance companies from the dressing stations. Such a separation is impossible with our field hospitals, as there never was one; however, the wagons could be "loaned" the ambulance company for transport service.—G. M. B.)

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Leaving aside details applicable to the Austrian sanitary service, the author demands:

1. First aid as much as possible during battle behind the firing line (corresponding to our regimental aid stations).

2. Next at the dressing stations. For both sanitary regimental personnel and equipment (which is enumerated in detail) only to be considered.

3. Establishment of a rest (refreshment) station by a unit.

4. Establishment of a main dressing station, divided into receiving, dressing and hospital department (to the latter all operative work is sent).

The field and other hospitals of the rear must be reorganized, as well as the entire transport system; in the scheme of such organization proposed rather in detail the principal features of the French sanitary regulations have been adopted.

ENGLAND.

The Lancet.

December 5, 1914.

24 *Glycerine in Bromidrosis with a Note on Military Needs. T. H. C. Benians.

25 A Case of Leprosy Treated with Radium and Diathermy. C. E. Iredell.

26 On Some Cases of Anomalous Fever. Seymour Taylor.

24. **Glycerine in Bromidrosis with a Note on Military Needs, by T. H. C. Benians,* is an article of particular interest to National Guardmen. Bromidrosis is a condition of offensive sweating usually limited to the soles of the feet. It occurs most frequently during the hot months, is highly resistant to treatment and in severe cases is associated with marked tenderness of the soles and abrasions and blisters readily form. The condition is attributed to the bacterial decomposition of the sweat. Among the most important substances giving rise to bromidrosis are probably indol and perhaps skatol. Another and perhaps the most harmful is ammonia, and it seems probable that it is owing to its action on the skin that blisters and abrasions so readily occur. The addition of glycerine and various carbohydrates to the medium in which the indol-producing bacteria are growing prevents the formation of this substance. Furthermore, in place of an alkaline medium the fermentation of the glycerine leads to the production of a marked acidity. In treatment, then, the applica-

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tion of glycerine, while not inhibiting the growth of the bacteria, prevents the formation of indol and other end products of protein destruction, and substitutes an acid for an alkaline medium in contact with the skin of the foot.

Bromidrosis as a clinical entity is probably not common in the army, but even 1 per cent would make a considerable number of cases. The author's idea in adding the military note is to direct attention to a wider issue,—to the forced marches under conditions in which particular care of the feet and probably even measures for securing ordinary cleanliness are out of the question. Under such circumstances the application of glycerine by preventing the formation of noxious products would keep the skin healthy and even for a time do away with the necessity of washing. In practice the treatment is simply the application of glycerine in small quantity. The glycerine makes the skin moist and supple without destroying the protective layer.

December 12, 1914.

27 Wounds of the Soft Parts Produced by the Modern Bullet. G. H. Makins.
28 A Fatal and Exceptionally Intense Infection with Malaria. J. W. Scott Macfie.
29 Insomnia and Suicide. C. Ernest Pronger.
30 Experiments on the Germicidal Action of Colloidal Silver. W. J. Simpson.
31 *The Treatment of Tetanus.
32 *Cholera in Camps.
33 *Neuroses and the War.
34 Underwear and the War.

31. **Treatment of Tetanus.* This article appears in Reprints and Translations, page 165.

32. **Cholera in Camps* refers to the history of cholera in the recent Balkan campaigns and states that the infection was seldom water borne, but was mainly spread by contact with persons suffering from it. It is further asserted on good authority that the disease was commonly associated with dirty hands. Great difficulty was experienced in making the Belgian men use the latrines, and the soil became polluted. The soldiers' boots were often coated with a mixture of mud and human fæces. On taking off their boots and nether garments the men's hands came in contact with this contaminated mud, and as opportunities for washing were seldom available, their meals were eaten with unwashed hands, the result being infections of the food. What applies to the diffusion of cholera applies also to the spread of

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enteric fever and dysentery. The writer, however, asserts that danger from these diseases is reduced to a minimum in the British army because sanitation is so rigorously enforced among the British troops.

33. **Neuroses and the War.* It is early to draw conclusions between the stress of war and the development of hysteria, neurasthenia, traumatic and psychoneuroses; nevertheless those who are coming in contact with cases retired from the war are beginning to notice the frequency with which hysteria, traumatic and otherwise, is showing itself not only among Belgians but also among officers and men of the British troops. Illustrative cases are cited.

December 19, 1914.

35 A Method of Treating the Sac in the Radical Cure of Femoral Hernia. J. Philip Buckley.
36 A Case of Delayed Chloroform Poisoning. H. P. Fairlie.
37 *The Treatment of Wounds in War. Sir Anthony A. Bowlby.
38 Our Army's Teeth. F. Newland-Pedley.

37. **The Treatment of Wounds in War, by Sir Anthony A. Bowlby,* derives unusual interest from the presence of the author with the British Expeditionary Force as consulting surgeon. The article supports the views of Sir Watson Cheyne as given in *The Lancet,* November 21 and 28, 1914, in which he advocated in a remarkable way the maintenance of the Listerian methods. Sir Anthony in detailing his experiences with the Army shows convincingly that it is upon antiseptic procedure such as Lister advocated, that treatment of wounds in war must depend. Sir Anthony's description of conditions at the front is simple and forcible. He makes it plain that aseptic surgery is not practiced at the front, but that in every clearing hospital antiseptics are always used. He shows that the usual treatment here must be in accordance with the Listerine routine and throughout all his vivid communication indicates how hopeless any other routine would be in military practice.

December 26, 1914.

39 A Case of Intestinal Obstruction with Some Notes on Operative Technique. A. Webb Jones.
40 *Stretchers for the Wounded in the Trenches. G. K. Aubrey.

40. **Stretchers for the Wounded in the Trenches, by G. K. Aubrey,* gives the official description of the Army stretcher now in use. The length of this stretcher is an absolute bar to its use

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in the turning and twisting trenches, consequently removals from the trenches have to be effected at night under cover of darkness when the bearers lifting the man out of the trenches altogether convey him at considerable risk to him and themselves across open country. If a soldier is hit in the morning and cannot get out, he is compelled to wait all day lying in a corner of the trench. This gives the *raison d'être* of the short Fusilier trench stretcher, which the author, with the assistance of Bandsman W. H. Ayres, and which is described in this article with diagrammatic sketch. Its total length is 120 cm.; total width, 52 cm., and its canvas seat measurement is 63 x 52 cm. The shoulder slings of the Mark II stretcher are used with this new Fusilier trench stretcher, as is also the Mark II pillow as a cushion placed longwise on the canvas between the poles. The patient is seated on the canvas, his head and back resting against the breast of the rear bearer, whilst his feet hang just clear of the front bearer's legs. The pole is fitted with a folded-up hinged leg and strap, which can be used to sling loosely and give support to one or other of the patient's legs with appreciable inconvenience either to him or the front bearer. If necessary a bandage or strap may be passed in front of the patient's chest and attached on either side to the shoulder sling, which goes from the rear bearer's shoulders to the handles. When carrying a man the hinged legs hang from the poles, and are so placed as to take the weight of the patient evenly if the bearers lower the stretcher a little to rest or change, and very little effort is needed to hold it steadily balanced.

January 2, 1915.

41 *Some Experiences of Shell Wounds in the Present War. A. W. Sheen.
42 X-Rays in War Time. Edward W. H. Shenton.
43 *Amputations in War Surgery. M. Fitzmaurice-Kelly.

41. ***Some Experiences of Shell Wounds in the Present War, by A. W. Sheen,*** affirms that all aggressive surgery in the case of shrapnel and shell wounds is to be avoided. The best treatment is the boracic fomentation assiduously and properly applied. The lint should be wrung as dry as possible out of really boiling water, put on in at least two layers, amply covering the wound and adjacent parts, well overlapped by the mackintosh, fixed so as to avoid displacement and to permit of easy changing and changed as often as every two hours in bad cases.

Where there is a wide wound, locally very foul but with no spreading or general infection, antiseptic sawdust is a good dress-

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ing. The sawdust is best applied over a layer of sterile gauze laid across the wound. The corners of the gauze are then brought over the sawdust. The dressing should be changed at least twice daily.

The use of gauze plugs, sterile or medicated, is harmful, as they become intensely foul and cork up discharge. Drainage tubes are but rarely necessary. Granulating and mildly infected wounds do well under sterile gauze wrung out of warm "parabolic" applied twice daily. Sterile wounds require a dab of tincture of iodine and a pad of sterile gauze daily. Occasionally an obvious abscess requires opening but it is well to wait for definite evidence of these conditions. Doubtful spots should not be incised if the temperature is normal.

The best procedure in ward dressings is as follows: The "dresser" wears rubber gloves throughout, the lotion is warm "parabolic," 1 in 40. Between each dressing the gloved hands are washed in soap and water and rubbed with the lotion. Wool dabs are used in the lotion, gloved hands rinsed in it, instruments kept in it. The whole process is simple and expeditious.

The prolonged hot iodine bath for limbs is very useful; three or four hours at a time alternating with the fomentations. While in the bath the patients are encouraged in the use of muscles and joints. In speaking of limb injuries the author says: "Do not think of the wound; think of the limb below it. Endeavor to minimize the crop of cripples which this war will bring forth. Patients must be stood over at the time of their dressings and carefully and methodically put through different movements and exercises.

This is sufficient to give an idea of the specific and comprehensive directions given in this long article, which is illustrated by typical skiagrams-account of cases of special interest.

43. **Amputations in War Surgery, by Lieut. M. Fitzmaurice-Kelly, R. A. M. C.,* calls attention to a method of operation, which the author was the first to suggest, for use in military surgery, but which goes back to the dawn of surgery, consists of a simple circular division of all the tissues, including the bones at the same level, that level being the lowest possible. The skin is divided by a circular sweep, the muscles are severed at the level to which the skin retracts and the bone is then sawn at the same level. The bleeding points are secured and tied, the nerves pulled down and cut short, and a dressing is then applied to the raw surface of the stump. The advantages claimed for

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the method are: (1) Economy of tissue. The amputation is performed at the lowest level at which a flap could be cut, or even lower, and all recoverable tissue is thus preserved. (2) It is applicable to otherwise hopeless cases, such as wounds or gangrene at the root of the limbs, and in these cases carries a much better prognosis than disarticulation at the hip or shoulder joint. (3) It is very rapidly done, and there is very little shock. (4) The surface from which septic absorption can occur is the least possible, and the drainage is free. (5) The nutrition of the stump is unimpaired; in this respect its advantage over a flap amputation is obvious. (6) It is so simple that it is within the range of everyone, and does not need an experienced surgeon for its performance. The author also believes that this method possesses especial advantages in the case of multiple wounds which render it impossible to obtain suitable flaps. The chief disadvantage of the method is that a re-amputation is necessary, but this second operation can be postponed until the infection of the wound has disappeared, so that is an inconvenience rather than a contra-indication.

INDIA.

The Indian Ambulance Gazette.

October, 1914.

44 The St. John Ambulance Association and the War. (Editorial.)
45 The Rôle of Ambulance Societies in War. Surg. Gen. Baltie.
46 *Improved Method of Carrying a Wounded Man by a Single Bearer. D. B. McGrigor.
47 A Red Cross Hospital in Japan. John Smyth.

46. **Improved Method of Carrying a Wounded Man by a Single Bearer, by Capt. D. B. McGrigor, R. A. M. C.,* illustrates a method which was described in an article in THE MILITARY SURGEON for September, 1914, page 243. The methods are undoubtedly independent discoveries of the medical officers exploiting them, but are so similar that figures 1 and 2 illustrating the lifting of the patient on the bearer's back and the carrying of the patient are almost identical in the two articles.

UNITED STATES.

United States Naval Medical Bulletin.

January, 1915.

48 *Shock, Anoci Association and Anesthesia. A. M. Fauntleroy.
50 *The Proposed Personnel, Organization and Equipment of a Hospital Ship. E. M. Blackwell and O. G. Ruge.

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51 The Application of Wassermann's Reaction to the Solution of the Etiology of Tropical Ulcerations. C. S. Butler.
52 Some Theories as to the Origin of Jackson's Veil. J. M. Lynch.
53 A Résumé of Etiological Factors Concerned in Yellow Fever. C. B. Camerer.
54 Some Observations on the Examination of Recruits. J. J. S. McMullin.
55 Experience of a Surgeon During the Occupation of Vera Cruz. G. T. Vaughan.
56 Experiences with Marine Expeditionary Force in Mexico. R. M. Little.
57 Treatment of Chronic Posterior Urethritis. G. T. Smith.
58 A New Method of Examining Stools for Eggs. C. M. Fauntleroy and R. Hayden.
59 An Account of the Yellow Fever Which Prevailed on Board the U. S. S. *Jamestown* in 1866-67 at Panama. W. M. Kerr.
60 A Card Index of Specific Cases. R. B. Henry.
61 The Otoscope as an Anterior Urethroscope. W. G. Steadman, Jr.

48. **Shock, Anoci Association and Anesthesia, by Surg. A. M. Fauntleroy,* discusses the prophylaxis of surgical shock on the lines suggested and practiced by Crile. The treatment of shock consists in the prevention of further shock and the support of the circulation. The author describes the various anesthetics, their indications and contra-indications, his conclusions being that either by the open or drop method is undoubtedly the present inhalation anesthetic of choice.

50. **The Proposed Personnel, Organization and Equipment of a Hospital Ship, by Surg. E. M. Blackwell and Chief Pharmacist O. G. Ruge,* is based on the plan prepared under the direction of the Surgeon General, approved by the General Board and published in the Bulletin of July, 1914. Hospital ships of the Navy are commanded by medical officers not below the grade of surgeon. The officers and crew consist of the naval complement composed of medical officers, hospital corps men and such other pay officers and assistants as the Department may designate, and the naval auxiliary service complement, including the officers and men necessary for the navigation and upkeep of the ship, running the engines and machinery and attending the cooking and mess service. The entire personnel is under the command of and subject to the orders of the commanding officer, the executive surgeon and the master being the executive officers of the ship, each of whom is directly responsible to the commanding officer for the management and conduct of his department. The personnel of the medical department is made up of four divisions: (1) An administrative division in charge of the

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executive surgeon and including the pharmacists and members of the hospital corps not detailed to ward or other duties pertaining to the direct care and treatment of the sick. (2) The surgical division is in charge of the operating surgeon and includes two other medical officers and one dental officer and the members of the hospital corps detailed for the sick officers' quarters and surgical wards, operating and X-ray rooms, eye, ear, nose and throat room and dental office. (3) The medical division is in charge of a surgeon with two other medical officers as assistants and members of the hospital corps detailed for the medical, venereal and isolation wards, laboratory and autopsy rooms and for night duty. (4) The commissary division is in charge of a pay officer and includes such assistants as may be detailed to carry on the work. The personnel of the naval equipment of the hospital ship proposed would be about 100, consisting of 8 medical officers, including the commanding officer, one pay officer, one dental officer and one pharmacist, 88 hospital corps men and 4 men for the commissary division. This complement would be sufficient for from 400 to 500 patients. The hospital corps are divided into the usual starboard and port watches. The authors give minute details of the personnel of the naval complement and the naval auxiliary service and a very full medical supply table, and close their very valuable paper with a detailed description of the equipment of the commissary department.

New York Medical Journal.

January 2, 1915.

62 *Appendicitis Under Field Service Conditions, Allie W. Williams.
63 The Psychology of War. William Lee Howard.

62. **Appendicitis under Field Service Conditions, by Maj Allie W. Williams, M. C., U. S. A.*, is a report of a series of 52 operations performed under field service conditions in field hospitals in Texas City, Tex., and Vera Cruz, Mex. As a result of his experience the author formulates the following points favorable to early operation for appendicitis in the military service: (1) The patient is as a rule a young able-bodied soldier. (2) If by reason of any physical disability he is unable to perform his daily duties, he is required to go on sick report. (3) When his name is entered on sick report, he must be seen by the surgeon. Therefore not over twelve hours can elapse before his case is investigated. (4) As a disciplined soldier he usually accepts without question the decision of the medical officer as to the

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advisability of operation. (5) Solicitous relatives and friends are not present to urge delay. (6) Consultants and assistants are always at hand at a field hospital as the medical officers' quarters are adjacent to the ward tents.

January 9, 1915.

64 *Some Medico-Military Observations in the Late Balkan Wars. Clyde S. Ford.

64. ***Some Medico-Military Observations in the late Balkan Wars, by Maj. Clyde S. Ford, M. C., U. S. A.***, appeared in THE MILITARY SURGEON for January, under the title "General Medico-Military Observations in the Late Balkan Wars."

Popular Science Monthly.

January, 1915.

65 The Cinchona Botanical Station. Duncan S. Johnson.
66 The Indian's Health Problem. Charles A. Eastman.
67 Ductless Glands, Internal Secretions and Hormonic Equilibrium. Fielding H. Garrison.

Virginia Medical Semi-Monthly.

December 25, 1914.

68 The Cause of Prevalence of Trachoma. Talliaferro Clark.
69 Trachoma, an Important Public Health Problem. Methods Adopted for the Control of the Disease in Eastern Kentucky. John McMullen.

Medical Record.

December 5, 1914.

70 *With the German Army Medical Corps. Correspondence.

70. ***With the German Army Medical Corps. Correspondence.*** The correspondent describes the organization of the medical and nursing personnel of the army, including the three sanitary columns that march with each army corps, gives the equipment of the sanitary soldier and the sanitary officers and the location of the field hospitals and ambulance stations. The wounded are divided into those able to march, those transportable and those not transportable. The last class is designated by means of white pasteboard tags, each marked by two removable longitudinal red stripes. The removal of one stripe signifies that the individual is transportable and the removal of both stripes that its bearer is able to march. All the wounded unable to march are sent to field hospitals, of which 12, each with accommodations for 200 men, are attached to every army corps.

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December 19, 1914.

71 *Gunshot and Shell Wounds. P. C. Fauntleroy.

71. **Gunshot and Shell Wounds, by Maj. P. C. Fauntleroy, M. C., U. S. A.,* is an interesting essay on ballistics with especial reference to the effects of bullets and shrapnel, concluding with a summary of treatment of gunshot injuries.

Cincinnati Lancet Clinic.

November 28, 1914.

72 Military Medicine. John D. Spelman.

Chicago Medical Recorder.

November, 1914.

73 The Medical Supply Department of an Army. James F. Hall.

Journal of the American Medical Association.

December 26, 1914.

74 Military Surgery in the Present War. J. P. Hoguet.

January 2, 1915.

75 Typhoid Immunization. L. I. Harris.
76 Plague in Havana. G. M. Guiteras.
77 Sprue. Ferdinand Schmitter.
78 *Deaths of Physicians in 1914. (Editorial.)

78. **Deaths of Physicians in* 1914. During 1914 the deaths of 2,205 physicians in the United States and Canada were noted in *The Journal of the American Medical Association.* Reckoning on a conservative estimate of 153,000 physicians, this is equivalent to an annual death rate of 14.41 per thousand. For the twelve years previous the death rates were as follows: 1913, 14.64; 1912, 14.13; 1911, 15.32; 1910, 16.96; 1909, 16.26; 1908, 17.39; 1907, 16.01; 1906, 17.02; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. The average annual mortality for the period from 1902 to 1914 inclusive was therefore 15.71 per thousand. The chief death causes in the order named were: Senility, heart disease, cerebral hemorrhage, pneumonia, accident and nephritis. The age at death varied from 23 to 99, with an average of 60 years, 11 months and 6 days. The general average of age at death since 1904 is 59 years, 9 months and 19 days. The number of years of practice varied from 1 to 75, the average being 33 years, 9 months and 29 days. The average for the past 11 years is 31 years, 11 months and 22 days.

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Causes of Death.—There were 225 deaths assigned to general diseases; 229 to diseases of the nervous system; 296 to diseases of the circulatory system; 145 to diseases of the respiratory system; 93 to diseases of the digestive system; 125 to diseases of the genito-urinary system; 3 to diseases of the skin; 3 to diseases of the bones; 411 to senility; 27 to suicide; 111 to accident; 13 to homicide and 79 after surgical operations. Among the principal assigned causes of death are senility, 411; heart disease, 211; cerebral hemorrhage, 185; pneumonia, 124; accident, 111; nephritis, 108; malignant disease, 56; tuberculosis, 48; appendicitis, 36; diabetes, 33; suicide, 27; septicemia and arteriosclerosis, each 25; angina pectoris, 23; typhoid, 17; gastritis, 14; myocarditis and homicide, each 13; cirrhosis of liver, 11; pernicious anemia, 10; endocarditis, 9; meningitis, 8; rheumatism and cholecystitis, each 7; bronchitis, 6; influenza, locomotor ataxia and scarlet fever, each 5; erysipelas, tetanus, pellagra, general paralysis of the insane, aneurysm, intestinal obstruction, peritonitis, Hodgkin's disease and mastoiditis, each 3; dysentery, syphilis, drug addiction, mental alienation, pleurisy and carbuncle, each 2 deaths, and malaria, small-pox, plumbism, chorea, embolism, ulcer of stomach, ulcer of duodenum, hernia, Addison's disease and retropharyngeal abscess, each 1 death.

The causes assigned for the 111 deaths from accident were: automobile, 25; falls, 17; poison, 10; automobile and railway, 9; railway and drowning, each 8 (of the latter, three were drowned in attempting to save lives); street car, 6; fracture of hip, 5; asphyxiation, firearms and sunstroke, each 4; burns, by animals, freezing and lightning, each 2, and explosion, runover and runaway, each 1. The 27 physicians who ended their lives by suicide selected the following methods: firearms, 13; poison, 10, and asphyxiation, strangulation, cutting instruments and cause not stated, 1 each. Of the 13 homicides, 10 were due to firearms, 2 to clubbing or beating and 1 to stabbing.. Of these, 4 occurred in feuds or affrays.

Ages.—Of the decedents, 61 were between the ages of 23 and 30; 199 between 31 and 40; 319 between 41 and 50; 432 between 51 and 60; 477 between 61 and 70; 404 between 71 and 80; 193 between 81 and 90; while 21 were more than 90 years of age. The greatest mortality occurred at the age of 62, when 68 deaths were recorded, at 70 with 61 deaths; at 59 with 59 deaths; at 54 and 55 with 58 deaths each; at 74 with 54 deaths, and at 69 when 51 died. There were 7 deaths each at 91 and 92; 2 at 93; 3 at 95; and 1 death each at 94 and 99.

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Years of practice.—By periods of ten years, the physicians died as follows: in the first decade, 162, of whom 7 had been in practice less than one year 12 less than two years; in the second decade, 304; third decade, 421; fourth decade, 553; fifth decade, 443; sixth decade, 225; seventh decade, 84, and eighth decade, 5, three of whom had been in practice 70 years and one each 71 and 74 years.

Military Service.—During the year, 275 died who had served in the Civil War, and of these 90 had followed the Lost Cause; 83 were medical officers of United States Volunteers, 2 were medical cadets, 10 served in the hospital corps and 2 had been army nurses. There were 2 veterans of the Mexican War; 2 had served in campaigns against the Indians; 17 had been in the Spanish-American War and 7 had been medical officers in foreign wars. The Army lost 9 officers, one of whom was surgeon-general, 3 members of the Medical Reserve Corps and 8 contract or acting assistant surgeons. The Navy lost 12 medical officers, the Public Health Service 10 officers, and the Organized Militia 28 medical officers, of whom 9 had attained the grade of surgeon general.

Medical Positions.—Medical colleges sustained the loss of 146 professors, lecturers, instructors and demonstrators; hospitals lost 290 members of staffs; municipalities, townships and counties, 165 health officers, and school boards or boards of education, 57 members. There were 29 deaths of members of state boards of health, medical examination and registration and charities; 29 of coroners and medical examiners and 84 of railway surgeons.

Civil Positions.—Of those who died, 1 had been a member of Congress; 1 an ambassador; 7 members of state senates; 39 members of the house of representatives; 39 had been mayors; 25 aldermen; 39 had served in various civil positions; 14 had been postmasters; 20 editors of medical or lay journals; 11 had been clergymen, of whom 2 were foreign missionaries; and 6 had been attorneys.

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Reviews

PUBLIC HEALTH LABORATORY WORK. By Henry R. Kenwood, M. B., F. R. S., Edin., D. P. H., F. C. S., Chadwick Professor of Hygiene and Public Health, University of London, Medical Officer of Health and Public Analyst for the Metropolitan Borough of Stoke Newington; Examiner in Public Health to the Royal Colleges of Physicians and Surgeons, London, etc. Sixth edition revised. 8vo, cloth, pp. 418, with 87 illustrations. 1914. Price, $4.00. Paul B. Hoeber, New York.

A work on a technical and especially on a laboratory subject must possess great merit to require six editions. Kenwood's book is a brilliant example of technical works which have obtained and continue to retain public favor. The résumé of public health bacteriologic work which has appeared in the previous editions has been omitted in the edition under consideration in order that the volume may be kept within the compass of a handy laboratory guide. The author does not give an encyclopedic account of the various processes in public health laboratory work, but describes briefly and succinctly certain selected processes which experience has proved meet the requirements of the worker in this field. The division of the work into the chemical, microscopical and physical examination of water for public health purposes; the analysis of sewage and of sewage effluence; soil examination; air analysis; food examination, and the examination of disinfectants remains as in the previous edition.

The book is complete in itself as a manual of public health laboratory methods and it is probably the best handy laboratory guide extant.

THE PATRIOTIC SOCIETIES OF AMERICA AND THEIR LAPEL INSIGNIA. Compiled and edited by Sydney A. Phillips. Illustrated by reproduction of complete lapel insignia. Cloth, 8vo., pp. 140. Price, $1.50. 1914. Broadway Publishing Company, New York.

This little volume gives in consecutive form a brief history of forty-five of the patriotic societies of the United States, including the object of the society, conditions of membership and in a number of cases the constitution and by-laws. The compiler

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acknowledges that the list is not complete and gives the names of twenty-eight other organizations, including a number of very important patriotic societies about which he had been unable to obtain the necessary information. The colored plate is fairly well done. Would that we could say as much of the proof-reading, makeup and paper of the book itself.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago, December, 1914. (Vol. III, No. 6.) Published bi-monthly by W. B. Saunders Co., Philadelphia. pp. 1077-1238.

This concluding volume of the 1914 serial begins with a number of pages of photographs of Dr. Murphy, some members of his staff, and exterior and interior views of their new offices.

As a frontispiece Dr. Murphy is seen seated before his desk, his face reflected in a large mirror, Drs. Mix and Tivnen being contented with small photographic cuts. One of the hallways which, to judge from the picture, must contain expensive equipment, unfortunately gives the impression of a mortuary chapel because of the display of huge candelabra. On the whole one feels that the entire collection, published with the consent of Dr. Murphy, "at the special request of many readers," would have served better to illustrate the pages of some advertising circular than a scientific and dignified periodical, and one cannot but express regret that a truly great surgical teacher should feel the need of risking criticism at the hands of men equally famous, but who prefer suppression of the personal element, as becomes men of science.

The text itself begins to show evidence of loss of energy. Some cases are presented in an interesting manner, but some have been discussed before. Padding in the form of a discussion of Hodgkins disease by Mix, and auto-sensitized autogenous vaccines by Kreuscher may or may not fit into the work; but as subscribers have been led to believe that Murphy's clinics are restricted to surgical work purely, the advisability of changing the title of this serial suggests itself.

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News of the Services

ARMY

A daughter was born to Lieut. and Mrs. John W. Sherwood, at Fort Bliss, Tex., December 23, 1914.

Maj. George H. R. Gosman, M. C., has taken up his duty as officer in charge of recruiting at Fort McDowell, Cal.

Lieut. Philip Mills Jones, M. R. C., was married to Miss Helen Louise Spalding, at San Francisco, December 30, 1914.

Captain and Mrs. S. M. De Loffre were entertained at dinner in New York, December 22, 1914, by Dr. and Mrs. Henry S. Pritchett.

Col. H. D. Snyder, who has been on duty in the Surgeon General's office, has been assigned as Chief Surgeon of the brigade on duty in the Canal Zone.

Maj. Joseph H. Ford is reported to have been on duty as observer with the Austrian Army which retreated before the Servians after the recapture of Belgrade.

Maj. William W. Reno, stationed at Fort D. A. Russell, Wyo., took his annual ninety-mile riding test December 26 to 28 under the adverse circumstances of wind, cold, snow and ice.

Major George H. Crabtree, attached to the Ninth Cavalry, is said by the El Paso *Herald* to have played tennis at Maple, Ariz., for two hours one afternoon, disdaining the bullets flying over the court from the belligerent Mexican forces.

It has been decided by the Judge Advocate General that in the case of Captain Percy L. Jones, there was obviously no urgency of duty which required unauthorized travel between Washington and Fort Myer, Va., and that, therefore, Captain Jones is not legally entitled to mileage.

Brigadier General and Mrs. George M. Sternberg gave a dinner in Washington, December 22, to twelve guests, including the Surgeon General of the Army and Mrs. W. C. Gorgas, the Adjutant General of the Army and Mrs. Henry P. McCain, and Representative and Mrs. James R. Mann.

Lieut. Col. Frederick P. Reynolds, Department Surgeon, stationed at Honolulu, was elected president of the Medical Society of Hawaii at the twenty-third annual meeting, held in Honolulu, November 23, 1914. Dr. E. D. Kilbourne, formerly of the Medical Corps, was elected treasurer of the Association.

The bill for the abandonment of Alcatraz Island seems to have been lost sight of in the House and Senate, and so now it is thought by some that the removal will not take place this year. The hospital in the prison building is a very fine one and the operating room is one worthy of any

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establishment. Much interesting medical and surgical work can be done there.

House Bill No. 15418, authorizing Maj. Clyde S. Ford to accept and wear the decoration tendered him by the Ottoman and Bulgarian governments for services rendered in the Balkan Wars, was stricken from the calendar by unanimous consent at the instance of Representative James R. Mann of Illinois, who objected to the singling out of one man to receive a decoration from the many to whom decorations had been tendered by foreign governments.

Mrs. L. Mervin Maus, wife of Col. Maus, and a leader in all good works, issues an appeal for the Army Relief, a society formed to take care of the immediate needs of the dependent families of officers and men who died in the Spanish-American War. It is proposed that apartment houses be erected on Army reservations where destitute Army widows could live, paying just enough rent to make the buildings self-supporting. Washington, New York and San Francisco are suggested as localities for these apartment houses. Mrs. Maus advocates the starting of a building fund for these houses which she believes could be erected at a cost of from $90,000 to $100,000 each.

Surgeon General Gorgas made his plea for the Medical Department of the Army before the Committee on Military Affairs. He asked for legislation to enable the Medical Department to dispose of stores to the American National Red Cross and other purchases at prices 25 per cent in advance of the contract prices, as by this means it would be possible to replace stock which might otherwise deteriorate or become obsolete. He also spoke of the advantage and economy of motor ambulances as compared with horse drawn vehicles. He urged legislation which would enable the details of Army officers to act as health officers when desired and asked also that the existing laws be so amended as to make it possible for medical officers to attend the meetings of medical societies. He was prompt and emphatic in his opposition to the transfer of the Surgeon General's library to the Library of Congress, and finally informed the committee that the Army was so short of medical officers at the present time that it was necessary to employ contract surgeons, and that these officers were more advantageous than members of the Medical Reserve Corps on the Inactive List.

NAVY

P. A. Surg. U. H. Shaw has been ordered to duty at the Navy Yard, New York.

Asst. Surg. C. S. Stephenson has been assigned to duty at the Naval Station, Cavite.

Surg. J. S. Taylor has been detached from the *Illinois* and ordered to the *Nebraska*.

The appearance of the new Manual for the Medical Department of the Navy is announced.

P. A. Surg. H. S. Lawrence has been ordered to temporary duty at Newport Hospital.

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P. A. Surg. Heber Butts has been detached from the *Wilmington* and ordered to the *Monterey*.

P. A. Surg. W. H. Connor has been detached from the *Dubuque* and ordered to duty on the *Fulton*.

Asst. Surg. P. S. Ledbetter has been detached from the *Pompey* and ordered to the Olangapo Station.

P. A. Surg. W. H. Massey has been detached from duty at the Olangapo Station and ordered to the *Pompey*.

A son, Mark Sears, was born September 18, 1914, to P. A. Surg. and Mrs. E. E. Curtiss at Agana, Guam.

Med. Dir. L. L. Von Wedekind has been detached from the *Solace* and directed to proceed home to await orders.

P. A. Surg. P. A. Vickery has been detached from the 5th Regiment of Marines and ordered to the Asiatic Station.

P. A. Surg. D. H. Allen has been detached from the 5th Regiment, U. S. M. C., and ordered to the *New Hampshire*.

A son, Albert Howard Hayden, was born to P. A. Surg. and Mrs. Reynolds Hayden at Honolulu, December 4, 1914.

P. A. Surg. G. E. Thomas has been detached from the Naval Prison and ordered to duty at the Navy Yard at Portsmouth, N. H.

P. A. Surg. E. V. Valz has been detached from the *Minnesota* and ordered home and has been succeeded by P. A. Surg. J. B. Pollard.

A. A. Surg. M. E. Rose has been detached from the 5th Regiment, U. S. M. C., and ordered to duty at the Navy Yard, Charleston, S. C.

Med. Insp. R. M. Kennedy has been detached from the Naval Dispensary, Washington, D. C., and directed to take command of the *Solace*.

Surg. J. Stepp has been detached from duty at the Naval Dispensary, Washington, D. C., and ordered to the Marine Barracks, Washington, D. C.

A son, William Metcalfe, was born to P. A. Surg. and Mrs. John B. Kaufman, December 29, 1914, at the Naval Training Station, Newport, R. I.

P. A. Surg. E. I. Longabaugh has been detached from the Third Regiment, U. S. M. C., San Diego, and ordered to regimental headquarters, San Diego.

P. A. Surg. E. W. Phillips has been detached from the Naval Hospital, Philadelphia, and ordered for treatment to the Naval Hospital, Las Animas, Colo.

P. A. Surg. K. C. Melhorn has been detached from the Advanced Base Expedition Pacific Fleet and ordered to duty with the Marine Corps at Mare Island, Cal.

P. A. Surg. L. Sheldon has been detached from the Naval Medical School, Washington, D. C., and ordered to duty at the Naval Dispensary, Washington, D. C.

Med. Insp. C. T. H. Lowndes has been detached from the Marine Barracks, Washington, D. C., and ordered to duty at the Naval Dispensary, Washington, D. C.

Asst. Surg. L. A. Boddis has been detached from the Marine Advanced Base Expedition Pacific Fleet and directed to proceed to the Asiatic Station by the January transport.

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Asst. Surg. L. Lehrfeld has been detached from the Marine Advanced Base Expedition Pacific Fleet and ordered to duty at regimental headquarters, U. S. M. C., San Diego, Cal.

Surg. W. Seaman, who was detached from the Bureau of Medicine and Surgery, Navy Department, December 29, and directed to proceed to his home and await orders, has been ordered to the Naval Station at Honolulu, T. H.

P. A. Surg. W. A. Angwin, who was ordered to the *Monterey* on December 14, was detached from that ship on December 31, and ordered to duty at the Naval Station at Cavite, P. I.

Dr. Francis M. Shook (ret.) is house surgeon of the Ear and Throat Division of the Manhattan Eye, Ear and Throat Hospital, New York City, and is residing at 829 Madison Avenue.

Surg. M. S. Elliott, attached to the U. S. S. *Florida*, suggests as the result of a recent experience that during overhaul periods a portion of the crew of ships should live in camp on shore. In the experience referred to the camp was under the immediate command of the marine officer and was regularly inspected by the commanding officer and the medical officer. The men slept and ate in the camp and were marched to and from the ship for duty. The men were also instructed at this time in first aid, personal hygiene, etc., and during the three months that the camp was occupied only trivial cases of illness occurred and not a single man was admitted to the sick list.

PUBLIC HEALTH SERVICE

Surg. B. J. Duffy has been transferred from Manila, P. I., to San Francisco, Cal.

P. A. Surgs. A. D. Foster and Holcombe McG. Robertson have been promoted and commissioned surgeons.

Asst. Surg. R. R. Sayers has been directed to report to the chief medical officer, Ellis Island, N. Y., for duty.

Prof. C. W. Stiles recently addressed the Knife and Fork Club of Kansas City, Mo., on public health subjects.

Surg. M. K. Gwyn has been granted two months' leave of absence on account of illness to date from December 25, 1914.

Asst. Epidemologist F. E. Harrington has been sent to Hindman, Ky., for the purpose of investigating an outbreak of typhoid fever.

P. A. Surg. N. Roberts has been relieved from duty in plague eradication and directed to return to his station at Marcus Hook, Pa.

Asst. Surg. Joseph Bolten has been directed to report to the Director of the Hygienic Laboratory, Washington, D. C., for temporary duty.

Asst. Surg. R. R. Spencer has been directed to report to the Director of the Hygienic Laboratory, Washington, D. C., for temporary duty.

Surg. Taliaferro Clark has been directed to examine an alien at Garfield Memorial Hospital undergoing treatment for ringworm of the scalp.

Surg. W. C. Billings has been granted leave of absence for two months and fifteen days from December 19, with permission to go beyond the seas.

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Asst. Surg. Gen. W. D. Rucker has been directed to proceed to Washington, D. C., for conference regarding plague eradicative measures in New Orleans.

Surg. W. G. Stimpson has been directed to proceed to Baltimore to inspect the installation of the hospital equipment in the U. S. R. C. *Androscoggin*.

Prof. Carl Voegtlin was directed to attend the meeting of the American Federation of Biological Societies at St. Louis and to present two papers on "Nutrition."

P. A. Surg. R. Olesen has been directed to proceed to Columbus, Ohio, to secure data needed in industrial investigations, thence to return to station at Washington, D. C.

Asst. Surg. H. M. Thometz has been relieved from duty on the Revenue Cutter *Manning* and assigned to temporary duty at the quarantine station at Angel Island, Cal.

Drs. Saunders L. Christian, Paul M. Stewart, Charles J. McDevitt, Roscoe R. Spencer, Walter C. Teufel and Royd R. Sayers have been commissioned assistant surgeons.

Asst. Surg. P. M. Stewart has been directed to proceed to Baltimore and report to the medical officer in charge of the Marine Hospital for duty and assignment of quarters.

Asst. Surg. C. J. McDevitt has been directed to proceed to Chicago and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters.

Asst. Surg. W. C. Teufel has been directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters.

Technical Assistant M. I. Wilbert was detailed to attend the meeting of the Association for the Advancement of Science, held in Philadelphia, December 28, 1914, to January 2, 1915.

Asst. Surg. W. C. Witte has been relieved from duty at the Marine Hospital, Chicago, and directed to proceed to Seattle, Wash., and report to the medical officer in charge for duty.

Asst. Surg. S. L. Christian has been directed to proceed to New Orleans and report to the medical officer in charge of the Marine Hospital for duty and assignment of quarters.

P. A. Surgs. E. A. Sweet and Robert Olesen have been directed to report to Asst. Surg. Gen. W. C. Rucker for duty in the examination of certain public buildings in Washington, D. C.

Asst. Surg. K. E. Miller has been relieved from duty at Stapleton, N. Y., and directed to proceed to Norfolk, Va., and report to the commanding officer of the U. S. R. C. *Itasca* for duty.

Asst. Surg. A. R. Sweeney, en route to station at New Orleans Quarantine, has been directed to stop in New Orleans for a period of not more than seven days for instruction in plague eradicative measures.

Surg. J. W. Scherechewsky has been directed to attend a meeting of the American Association for the Advancement of Science in Philadelphia and to deliver an address on the "Physical Condition of Industrial Workers."

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Asst. Surg. T. J. Liddell has been relieved from duty at the Marine Hospital, New Orleans, and directed to proceed to the New Orleans Quarantine Station and report to the medical officer in charge for duty and assignment to quarters.

P. A. Surg. W. H. Frost, at the request of the State Board of Health of Tennessee, visited Knoxville to make an investigation of the character of the raw and treated water used in that city, and also of the other available surface water supplies.

Senior Surg. D. A. Carmichael was directed to return to his station at Vineyard Haven, Mass., December 21, and to proceed to Washington, D. C., January 5, for completion of duties in the examination of marine hospitals and quarantine stations.

Asst. Surgs. W. E. Glanville and H. M. Thometz, who have been relieved from temporary duty at the San Francisco Quarantine Station, were directed to proceed to Manila, P. I., by the S. S. *Mongolia,* on January 9, and report to the chief quarantine officer for duty.

Prof. E. D. Phelps has been directed to attend the meeting of the American Association for the Advancement of Science and the Society of American Bacteriologists in Philadelphia and to present a paper on "Some Fundamental Physical Factors in the Ventilation Problem."

Examination of Candidates for Assistant Surgeon

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B street, S. E., Washington, D. C., and at the Marine Hospitals of Boston, Mass., New York, N. Y., Chicago, Ill., St. Louis, Mo., Louisville, Ky. New Orleans, La., and San Francisco, Cal., on Monday, March 8, 1915, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet 4 inches nor more than 6 feet 2 inches in height.

The following is the usual order of the examinations: (1) Physical. (2) Oral. (3) Written. (4) Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery and hygiene.

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The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500 and assistant surgeon generals $4,000 a year. When quarters are not provided, commutation at the rate of $30, $40 and $50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

NATIONAL GUARD

Capt. A. E. Lane, M. C., Wyo. N. G., assigned to 3rd Infantry, has resigned.

Dr. W. A. Smith, Centralia, has been designated First Lieutenant, M. R. C., Wash. N. G.

Maj. John F. Dunseith, M. C., N. Y. N. G., has been detailed as aid to Governor-elect Whitman.

Capt. Archibald Golding Chittick, M. C., Ind. N. G., has been appointed city health officer of Frankfort.

Dr. Brannon Hubbard, Montgomery, has been commissioned First Lieutenant, M. C., Ala. N. G.

Lieut. William Scott, M. R. C., Wash. N. G., has been relieved from duty as an officer of the Medical Reserve Corps.

Dr. F. J. Monaghan has been elected Surgeon of the Veteran Association of the Forty-seventh Infantry, N. Y. N. G.

Dr. Charles A. McCarthy has been appointed First Lieutenant, M. C., N. Y. N. G., and assigned to the Sixty-ninth Infantry.

Dr. E. M. Turner, Laramie, has been commissioned Captain, M C., Wyo. N. G., and assigned to duty with the 3rd Infantry.

Maj. William J. Crookston, M. C., assigned 14th Infantry, Pa. N. G., resigned December 30, 1914, and is held as supernumerary.

Capt. Frank W. Foxworthy, M. C., Ind. N. G., has been elected chief medical director of the Anchor Life Insurance Co., Indianapolis.

Lieut. Joseph W. Greene, M. R. C., Mo. N. G., has been placed on the active list and assigned to duty with Battery C, Independence.

Lieut. Dean F. Winn, M. C., Ga. N. G., assigned to 5th Infantry, has been appointed a staff physician with the American Red Cross in Russia.

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Capt. David W. Parker, M. C., N. H. N. G., has been appointed a member of the personal military staff of Gov. Roland H. Spaulding of New Hampshire.

Maj. Louis T. Hess, M. C., U. S. A., inspector-instructor of sanitary troops of Maryland, is conducting a correspondence school for medical officers of the State.

Maj. E. A. Hamilton, M. C., Ohio N. G., is the medical member of a board appointed to examine a large number of candidate officers for the Ohio National Guard.

Lieut. Legis C. Babcock, M. C., Pa. N. G., assigned 4th Infantry, has been granted leave of absence from January 1 to May 1, with permission to leave the United States.

An ambulance company was mustered into the service of the State of Tennessee at Memphis, December 17, 1914. This company formerly had its headquarters at Huntingdon.

Maj. H. E. Ashbury, M. C., Md. N. G., has been appointed chief medical officer of the 4th Infantry, vice Maj. J. Harry Ullrich, who has been transferred to the Field Hospital.

Lieut. Theodore L. Hazlett, M. C., Pa. N. G., assigned 14th Infantry, has been granted leave of absence from December 1, 1914, to December 1, 1915, with permission to go beyond the sea.

Lieut. J. C. Barker, M. C., Conn. N. G., has been appointed instructor in bacteriology in Dartmouth Medical School, Hanover, N. H., and has been given leave of absence until June 15, 1915.

Maj. J. William Voss, M. C., Mass. V. M., who was originally commissioned as Assistant Surgeon of the Second Corps of Cadets in 1899, has been retired with the rank of Lieutenant Colonel.

The Veteran Corps of Artillery of New York has elected as its Surgeon Dr. John Herbert Claiborne, formerly a member of Squadron A and later First Lieutenant M. C., assigned Twelfth Infantry.

Maj. Gen. John F. Ryan, commanding the National Guard of New York, inspected the Medical Department of the Third Infantry and witnessed a drill at Rochester by the Second Ambulance Company.

Maj. W. J. Crookston, M. C., Pa. N. G., assigned to 14th Infantry, has been appointed a director in the Red Cross service, and has been assigned to the command of a unit in Austro-Hungary. He sailed for Genoa, December 29, 1914.

The relative standing of officers in the Service Schools of the National Guard of New Jersey shows that three officers of the Medical Corps attained the grade of 100; ten, grades between 90 and 100, three below 90 and eight were found deficient.

During November, 1914, the Hospital Corps attached to the First Connecticut N. G., is reported to have had the highest percentage of strength of organization and the lowest percentage of attendance at drills. The percentage was 63.88.

In conformity with the directors of the War Department the authorized minimum strength for the Hospital Corps is as follows: Ambulance company section, total enlisted personnel, 43, including 2 sergeants first class, 7 sergeants, 1 acting cook and 33 privates first class and privates; for the field hospital a total enlisted personnel of 33 apportioned as follows: 3 sergeants first class, 6 sergeants, 2 acting cooks and 22 privates.

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Maj. Elmer E. Keiser, Capt. Eugene Swayne and Lieuts. John A. Broadfield, Charles M. Sturtevant and Charles P. Brady have been assigned to Field Hospital No. 2, Pa. N. G.; Capt. Robert F. Trainer has been assigned to the Separate Battalion Infantry, Pa. N. G.

Commissions were issued December 31 to the following officers of the Medical Corps, Pa. N. G.: Maj. Elmer E. Keiser, Capt. Eugene Swayne and Lieuts. John A. Broadfield, Chas. N. Sturtevant and Charles P. Brady, all original appointments and all to date from December 8. Capt. Robt. F. Trainer was reappointed, December 20, 1914.

The Field Hospital equipment issued to the National Guard of Georgia is said to be stored in a cellar in Atlanta on account of the inadequateness of the appropriation for rental made by the State Legislature. Maj. A. G. Fort, commanding the Field Hospital, is making zealous efforts to secure proper accommodation for his command.

The course of study in the post-school for enlisted men of the Florida National Guard includes military hygiene together with first aid and personal and camp sanitation. The Year B Course for infantry officers embraces among other studies, military hygiene based on Ashburn's textbook and in the Year C Course instruction is given on shoes and care of the feet.

The annual inspection of the sanitary troops and medical property of the National Guard of Florida was made by Maj. Henry Page, M. C., U. S. A., Inspector-Instructor of Sanitary troops of the Organized Militia on the date and at the places named below: St. Petersburg. Detachment Hospital Corps, attached to Second Infantry, January 24; St. Augustine, medical property in store at State Arsenal, January 26; Milton, Detachment Hospital attached to First Infantry, January 28.

The federal inspection of sanitary troops of Georgia was held during January. On January 11 and 12 Field Hospital No. 1, Atlanta, was inspected; on January 13 the Hospital Corps Detachment of the 3rd Separate Battalion Infantry at Rome; on January 15 the Hospital Corps Detachment of the 2nd Squadron Cavalry at Winder; on January 18 the Hospital Corps Detachment of the 5th Infantry at Atlanta; on January 20 the Hospital Corps Detachment of the 2nd Infantry at Lincoln; and on January 21 and 22 the Hospital Corps Detachments of the 1st Infantry Post Artillery Company and 1st Battalion Field Artillery at Savannah.

General Orders No. 1, A. G. O., State of New Jersey, January 2, 1915. announces the organization of the National Guard of the State in conformity with the requirements of the Federal Militia Law. Under this law the Medical Department consists of a Medical Corps with one Lieutenant Colonel as Surgeon General, seven majors and thirty captains or first lieutenants and a hospital corps with ten sergeants first class, thirty sergeants or corporals and 131 privates first class or privates. To each regiment of infantry is attached one major and three captains or first lieutenants of the Medical Corps, one sergeant first class, three sergeants and twelve privates first class or privates hospital corps. The sanitary troops attached to the cavalry squadron include one captain or first lieutenant, Medical Corps; one sergeant and five privates first class, or privates hospital corps. To each two batteries of the field artillery are attached one captain or first lieutenant, Medical Corps, one sergeant or corporal and six privates first class or privates hospital corps. To the

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Signal Corps are attached one captain or lieutenant Medical Corps and two privates first class or privates Medical Corps. The field hospital consists of one major and four captains or first lieutenants hospital corps, with an enlisted personnel of thirty-three. The Ambulance Company has five captains or first lieutenants Medical Corps or an enlisted personnel of forty-three, with twelve ambulances, three wagons, sixty draft animals, etc.

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General News

Annual Meeting of Illinois Military Surgeons.—The Association of Military Surgeons of the State of Illinois held its annual meeting concurrently with that of the Illinois National Guard and Naval Reserve Association, on board the Illinois Naval Reserve S. S. *Commodore*, at Chicago, December 28, 1914. In the absence of the President, Maj. Thomas C. McCord, M. C., Ill. N. G., assigned Fourth Infantry, the chair was taken by Maj. Thomas J. Sullivan, M. C., Ill. N. G., assigned Seventh Infantry. After remarks by the chairman, by Maj. James M. Phalen, M. C., U. S. A., Inspector-Instructor for the Sanitary Troops of the District, and by Lieut. Col. Jacob Frank, Surgeon General of Illinois, the following officers were elected: President, Lieut. Col. Jacob Frank, Chicago, Surgeon General of Illinois; Vice-President, Capt. Arthur F. Wilhelmy, M. C., Ill. N. G., assigned Fifth Infantry; the Secretary-Treasurer, Brig. Gen. Samuel C. Stanton, M. C., Ill. N. G. (ret.), was re-elected. In the evening the Surgeon General entertained the members of the Association at dinner at the Red Star Inn.

New Gorgas Medal.—The Medical Reserve Corps, New York State Division has established a new medal to be given yearly in honor of Surgeon General Gorgas. It will be called "The Gorgas Medal" and competition for it will be open to members of the Medical Corps of the United States Army, the Medical Reserve Corps of the United States Army and to members of the Medical Corps of the Organized Militia. Officers may submit papers on any subject of a medico-military nature. General Gorgas has appointed the following board of officers to act upon papers submitted: Colonel Charles Richard, Lieut. Col. Champe C. McCulloch, Jr., and Major Eugene R. Whitmore, Army Medical Corps. These officers are members of the faculty of the Army Medical School and will have sole authority to appoint the time that papers are to be submitted and to pass upon the merits of the papers. All inquiries should be addressed to one of these officers.

A War Evening With the Chicago Medical Society.—The meeting of the Chicago Medical Society of January 6 was devoted to subjects connected with the United Services. Col. William Stephenson, M. C., U. S. Army, Chief Surgeon of the Central Division, discussed "War from the Standpoint of the Military Surgeon," illustrating his remarks by the exhibition of a shrapnel shell, cartridges of various kinds, deformed bullets, and the emergency ration. P. A. Surg. Thomas W. Raison, U. S. Navy, in his paper on "Smallpox and Vaccination," gave a report of the epidemic of smallpox which occurred recently on the U. S. S. *Ohio* at Marseilles, France, and on the voyage home. Capt. Gustavus M. Blech, M. C., Ill. N. G., spoke on the "Medical Service in War with Special Reference to the United States Land Forces." Captain Blech emphasized the need of preparation for the medical service as well as for the line.

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and set forth clearly the difficulties that beset civil surgeons appointed as volunteers. He traced the work of a field hospital from its inception until the close of its participation in a war, and showed that while technically there is but one surgery, war surgery presents so many difficulties in the field with reference to operative indication and contra-indications, based on the needs of transport and evacuation, it constitutes a science *sui generis,* in which the *sine qua non* of success is adequate preparatory training in time of peace.

Research Work of Royal Army Medical Corps in 1914.—This includes a continuation of the experimental investigations of the Sleeping Sickness Commission by Sir David and Lady Bruce, Maj. D. Harvey, Maj. A. E. Hamerton, and Capt. D. P. Watson; and of the work of Lieut. Col. T. W. Gibbard and Maj. L. W. Harrison on treatment of syphilis with salvarsan. Lieut. Col. W. W. O. Beveridge, D. S. O., conducted an inquiry into the keeping properties of condensed milk at the temperature of tropical climates. An interesting practical test as to the sufficiency of the existing field service ration was carried out by Col. C. H. Melville, Maj. W. W. Beveridge, and Capt. N. D. Walker, assisted by Prof. J. S. Haldane and Dr. M. S. Pembrey. The conclusion arrived at was that the ration should be increased, particularly in the constituents of fatty and saccharine material, so as to bring it up to 4,600 calories.

War Notes

Hospital Trains.— At an estimated cost of $110,000, the milling trade of the United Kingdom has donated to the British Red Cross Society two hospital trains for the transport of British wounded in France and Belgium. They are to be known as the United Kingdom Flour-millers' Hospital Trains and each train has a capacity of 358 wounded and a staff and personnel of 51. The Egyptian Red Crescent Society has placed a hospital train at the disposition of the military authorities in Egypt.

Medical Professors to the Front.—Ten of the new professors in the University of Berlin have been called to the front, but the well-known names of Quincke and V. Noorden still appear as those of lecturers on medicine, and 80 students are enrolled.

Tetanus Among the Allies.—Dr. Albert Wilson, who has been serving with the French Army at a military base hospital, is authority for the following statistics taken from a paper by Dr. Walther in *La Presse Medicale*: "Out of one group of 135 wounded French there was not a single case of tetanus. Among 270 Germans there were 19 cases. These Germans had been left behind in the ambulances by the retreating Germans and had received neither food nor care for three days. Rescued by French troops they arrived at Val-de-Grace five days after being wounded. They had large infected and gangrenous wounds. Of the 19 cases the incubation period varied from 6 to 16 days; 5 were 8 days and 5 were 9 days. Those who had a short incubation died rapidly and *vice versa*. In these there was trismus, dysphagia, profuse salivation, tonic contractions with clonic crises, but no great rise in temperature. The treatment consisted of large doses of chloral, hot water in rectum, chloroform, injections of analgesine and antitoxin 20 to 60 cc., some-

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times intravenous. Out of 20 cases which had prophylactic injections of 10 cc., one case developed tetanus the next day."

War and the British Drug Supply.—At the December meeting of the British Pharmaceutical Society it was pointed out that the action of the government had within the space of two weeks leveled prices of medicinal products from the range of fancy to fact. The prohibition of the export of certain drugs was also an important factor in preventing scarcity in certain stocks. The high prices of certain synthetic products and other chemical substances made in Germany had prevented famine by acting as a check on consumption. It was also shown that on the outbreak of the war the increased demand for tetanus serum had soon exhausted the supply, which is normally small in England, and the British forces have since been depending on the antitoxin available from America.

Remedies for Shortage in British Naval Medical Department.—This shortage was so alarming even in 1913 that measures were taken in regard to it. Recent ameliorations of the service are: The senior medical officer now presides at medical surveys; the director-general has control over the publication of papers on professional subjects; private practice is allowed; the publication of a journal is approved of; and the charge of the large naval hospitals is now in the hands of the senior medical officer. Improvements still demanded are better cabin accommodations and the creation of specialist appointments as in the Army Medical Service, where their value and economy has been demonstrated for many years.

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Obituaries

Surgeon Carl DeWolf Brownell, Lieutenant Commander, U. S. Navy, an active member of the Association, died at his home in Providence, R. I., January 8, 1915, aged 48.

Surgeon Brownell was born at Bristol, R. I., July 6, 1866, the son of Charles DeWolf and Henrietta Knowlton Angell Brownell. His preliminary education was received in the schools and in the high school of Bristol and his medical course was taken at the University of Vermont, Burlington, Vt., and the University of the City of New York. He was graduated from the latter institution in 1888 and afterward served a term as interne in the Jersey City Hospital. He was also a Fellow of the American Medical Association.

Carl DeWolf Brownell, P. A. Surgeon, U. S. N.

He entered the Navy as an Assistant Surgeon April 6, 1891, and four years later was promoted to Passed Assistant Surgeon. From May, 1898, to January, 1900, he served in the Philippine Islands as medical officer of the U. S. S. *Petrel.* He was promoted to Surgeon March 3, 1903, and served in that capacity on board the U. S. S. *Alliance* until November 27, 1903; at the Naval Station, Guantanamo, Cuba, until December 20, 1904; on board the U. S. S. *Iowa* until October 25, 1905; at the Navy Recruiting Station, Providence, R. I., until July 14, 1906; at the Naval Training Station, Newport, R. I., and on board the U. S. S. *Constellation* until January 29, 1908; on board the U. S. S. *Mississippi, New Jersey* and *North Dakota* until October 25, 1910; at the Naval Hospital at Las Animas, Colo., until May 30, 1911; at the Naval Hospital, Portsmouth, N. H., and as senior medical officer and in command of that hospital until February 8, 1913, when he was placed on waiting orders. On January 20, 1914, he was transferred to the retired list on account of physical disability resulting from an incident of the service, after ten years and four months total sea service, ten years and seven months of shore or other duty and one year and nine months unemployed. After his retirement Surgeon Brownell returned to his old home in Providence, R. I., where he remained until his death.

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The Military Surgeon

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Original Articles

Authors alone are responsible for the opinions expressed in their contributions

Sanitary Work of the Army at Vera Cruz*

BY H. P. BIRMINGHAM, COLONEL MEDICAL CORPS, U. S. ARMY.

THE Expeditionary Forces to Vera Cruz, Mexico, comprising the reinforced Fifth Brigade, Second Division, U. S. Army, under the command of Brigadier General Frederick Funston, sailed from Galveston, Texas, April 24, 1914, and arrived at Vera Cruz, Mexico, April 28, 1914. The artillery and cavalry section, with Signal Corps and animals, arrived four days later. Disembarkment of the troops did not commence, however, until April 30, 1914.

On arrival in Vera Cruz, the military situation ashore being under the control of the Navy, was turned over to the Army, and in conjunction with the forces of the U. S. Marines remained so during the entire period of occupation. The situation involved the retention of the port, the city of Vera Cruz and the water works at El Tejar and Lagarto and the defenses of the town from attack along a perimeter of seven miles on the outskirts, these defensive posts having been already established by the Navy and Marine Corps.

Accordingly the distribution of the army forces involved their disposition on a section of the defensive perimeter with due regard to the tactical necessities of the situation, as well as proximity to camp sites and suitable buildings available for the housing of troops. Thus it was found that the following stations selected proved convenient to the outposts and obviated the stationing of large bodies of men in camps outside of the city where

*Report of the Chief Surgeon, United States Expeditionary Forces, to the Surgeon General U. S. Army for the period from April 24, 1914, to November 23, 1914.

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they would be exposed to the direct rays of the sun and to insect pests such as chiggers and mosquitoes, and furthermore permitted of easy methods of sanitation on account of accessibility to the city water mains and to sewerage connections.

For the most part the points selected were easily handled both from the standpoint of accessibility to supplies and to attendance upon the sick.

THE SANITARY SITUATION IN VERA CRUZ ON LANDING.

Upon the arrival of the Expeditionary Forces, the active military operations had about ceased and the way was clear to the taking over of the local health department with its dependencies, the charitable institutions of the city, namely, the San Sebastian Hospital, the Loreto Hospital and the Hospicio Zamora. Because of the more or less disorganized state of the government and the lack of attention to sanitation evidently covering a long period of time, the conditions were not altogether favorable. The civic population was to a great extent unvaccinated against smallpox and this disease was already present in epidemic form.

Intestinal infections were multiplying rapidly with the advent of the hot season, and the presence of a terrific fly pest from the accumulations of manure and garbage in the city.

Cerebro-spinal meningitis had been epidemic during the winter months to a large extent among the Mexican troops and a few cases still existed. The mosquito season was just beginning and the local population gave evidence that malaria was very prevalent. An examination of the city health records showed this to be the greatest source of morbidity among the Mexican people.

The most feared malady, yellow fever, had, however, not appeared since 1909, largely due to the civic improvements instituted by the Pearson Syndicate and the methods put in vogue by the Mexican government under Liceaga, from lessons learned from the American work in Cuba.

The presence of considerable tuberculosis among the Mexican people evidenced the necessity for care in the selection of buildings to be used as barracks.

Accordingly, measures were immediately instituted on landing as to the following points:

(a) Disinfection of the floors and walls of all buildings occupied by troops.

(b) Prompt screening of company kitchens and messes.

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(c) The administration of prophylactic doses of quinine sulphate to all troops in the command.

As all troops had been protected against typhoid and vaccinated against smallpox, these maladies were not a matter of great concern.

Immediate measures were taken to clean up the city and to effect a temporary organization of the sanitary department pending the arrival of higher authority. The City Health Department was placed temporarily in charge of Dr. G. M. Guiteras, and the quarantine of the port in charge of Dr. Rudolph H. von Ezdorf, both of the United States Public Health Service.

Upon my arrival on May 13, 1914, I assumed charge as Chief Surgeon and the Sanitary Service was rearranged under the following co-ordinate heads:

1. *Sanitary Service.*—United States Expeditionary Forces, including the First Advanced Brigade, U. S. Marine Corps, Brigadier General Frederick Funston, commanding. Chief Surgeon, Colonel Henry P. Birmingham, Medical Corps; Sanitary Inspector, Major Frederick M. Hartsock, Medical Corps; Director of Pathological Laboratory, Major F. F. Russell, Medical Corps.

2. *Under the Military Governor,* City of Vera Cruz, Mexico, Brigadier General Frederick Funston, Military Governor. Chief Sanitary Officer, Colonel Henry P. Birmingham, Medical Corps; Director of Public Health, Major Theodore C. Lyster, Medical Corps; Assistant Director of Public Health, Major Robert E. Noble, Medical Corps.

3. *Department of Maritime Quarantine.*—Officer in charge, Dr. Rudolph H. von Ezdorf, U. S. P. H. S. (Major E. P. Person, Medical Corps, U. S. Army, relieved Major Theodore C. Lyster as Director of Public Health September 2, 1914.)

4. SPECIAL SANITARY MEASURES ADOPTED.

The quartering of troops in Vera Cruz, with the uncertainty of any definite period of permanence demanded consideration as to the nature of, and expense to be incurred in installing sanitary measures, yet local conditions demanded something more than the ordinary field arrangements. Adapting the considerations to the various locations, it was found that the following answered all requirements and would have proved satisfactory for a practically indefinite period:

1. *Disposal of Excreta.*—(a) For troops in the city, in every case where buildings were occupied, the closet installations found

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were used, increase of capacity where needed being met by the plunger trough system. All toilets were screened.

(b) Isolated detachments and temporary camps were provided with fly-tight privy boxes for use over earth latrines. Crude petroleum was used for incineration and all pits were burned out twice a day.

2. *Disposal of Garbage.*—(a) For troops in center of city, the garbage was hauled to the city dump and there incinerated. (b) For all other organizations, which included more than three-fourths of the forces, the garbage was incinerated on the ground in a specially constructed incinerator of brick construction. These incinerators proved effective, clean and economical in the matter of fuel.

3. *Installation of Screened Kitchens and Messes.*—Throughout the whole command, on account of the fly menace at the time of occupation, screening measures were imperative and were carried out in a thorough manner. The completion of these structures, together with the measures instituted for fly extermination, practically put an end to all intestinal disorders, both diarrhetic and dysenteric.

The following sanitary regulations were published in orders and strictly enforced:

1. *Disposal of Garbage.*—For detachments or companies in camps, or in isolated locations where other means are not available, the incinerator shall be installed. Blue prints for same will be obtained at the Chief Surgeon's office. Material (brick 340, lime ¾ bag) will be obtained on requisition from the Quartermaster. Where disposal may be readily made by means of the city carts, the garbage can may be used. The cans shall be thoroughly cleansed, scalded and coated with crude petroleum after emptying. Liquid waste may be poured into city sewer openings where available; in such cases, however, a cover shall be provided for same and the surroundings kept free from grease, etc. Tin cans shall be incinerated, afterward smashed or perforated and disposed of as dry garbage. Ashes, dry garbage, etc., shall be hauled to and deposited on the city dump at end of Francisco Canal Street.

2. *Disposal of Manure and Care of Picket Lines.*—All manure shall be hauled to the city dump. Picket lines shall be kept broom swept and all manure and straw hauled off daily. A weekly incineration of the picket lines shall be accomplished with crude oil at the rate of ten gallons to each line. Crude oil

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may be obtained from the Quartermaster Corps on usual requisition.

3. *Disposal of Excreta.*—Where a water carriage system is not feasible the Havard box shall be used over the earth latrines. Daily inspection of this system is enjoined on the part of the medical officer of the organization, who will see that the following plan is carried out:

The latrine shall be burned out thoroughly with crude oil and hay twice a day. (Each burning, 1 gallon crude oil and 7.5 pounds hay.)

The boxes shall be at all times kept fly tight; this implies closure of all cracks and care of the hinges and a back construction so that the lids drop automatically. The latrine seats shall be washed off twice weekly with a 1|100 solution of cresoline and whitewashed inside twice weekly. Latrines shall be rebuilt when filled to within two feet of the top. Where water carriage system is in vogue, either the automatic flush or trough system shall be installed.

4. Kitchens and mess rooms shall be securely screened and an efficient fly trap be provided for catching such flies as gain entrance thereto. Ice boxes installed shall be inspected daily and drip pans emptied and scalded out. Garbage cans shall be kept on wooden racks and elevated from the ground and cans burned out daily with oil to prevent fouling, and kept clean outside with a coat of whitewash.

5. Arrangements shall be made for the installation of shower baths for all troops and a careful inspection shall be made daily to see that waste water therefrom is so disposed of as to prevent mosquito breeding.

6. The city water supply is considered potable. The terminal water supply is at present unfit for human consumption.

7. The use of the mosquito bar is imperative and it shall be used in all districts where mosquitoes are prevalent.

8. Attention is called to the use of the following foods, the elimination of which from messes will serve to prevent a variety of intestinal disorders:

(a) Hashes of meats and potatoes prepared the night previous. (Ptomaine poisoning of severe type.)

(b) Canned milk and fish opened the day before. (Fish and milk poisoning.)

(c) Locally grown green vegetables, uncooked. (Dysenteries and diarrhœa.)

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9. The daily use of three grains of sulphate of quinine as a malarial prophylactic is made compulsory for all troops.

10. Surgeons of organization shall make a daily inspection of the commands to which they pertain, covering the following: Picket lines, latrines, kitchens, barracks, inclosed toilets, baths, garbage receptacles, incinerators and all food supplies; they shall make a verbal report at once to their respective commanding officers for the correction of any sanitary defects noted, and a similar report, with the action taken, to the sanitary inspector on his next visit.

11. A special report shall be made at once by the surgeon of each organization to the sanitary inspector for the information of the Chief Surgeon in the following cases:

(a) Acute infectious or contagious diseases developing in barracks or camp.

(b) Cases of fever of 101° or over, attended with albuminuria.

(c) Unusual prevalence of mosquitoes in vicinity.

(d) Development of amœbic or bacillary dysentery or malaria in the command.

12. Venereal prophylaxis and venereal inspection shall be carried out thoroughly and the required monthly report of number of new cases of venereal diseases shall be sent to the Chief Surgeon through the Sanitary Inspector each month.

13. Areas about barracks in which mosquitoes could breed, such as cisterns, tanks, woods, gutters, pools and drains shall be kept under close observation by the surgeon, and the proper remedies applied, i. e., screening, draining, oiling, etc.

5. PREVAILING DISEASES IN THE COMMAND.

It is worthy of note that the occupation of Vera Cruz was attended by no higher percentage in the sick rate than for the troops in the United States.

The entire absence of epidemic diseases, such as typhoid fever, and cerebro-spinal fever, is to be remarked. No case of smallpox occurred in the forces of the Army, although one case of varioloid appeared in a vaccinated number of the U. S. Marines.

The eruptive fevers were singularly absent from the command in epidemic form, although numerous cases were noted in the city. No scarlatina was observed, but six cases of measles were treated at various times and three cases of diphtheria. No deaths occurred from any of these causes.

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The two principal causes of morbidity were dysentery and malaria, considered under separate headings, as follows:

DYSENTERY.

Two classes of this disease were observed, the bacillary and amœbic.

The bacillary dysentery was of the Shiga type and differed in no way from the infection observed in the Philippines, Japan and other parts of the world, except that the cases treated in the Army and Marine Hospitals were attended with a comparatively slight mortality rate. In seventy-six cases observed, there was one death.

The infection varied in virulence from the mildest, attended with a few mucous stools daily, to those of severest degree. All cases developed a febrile reaction, ran an acute course and few relapses were observed. As is the case with the Shiga type of infection, toxic nervous symptoms were observed in some cases, such as neuritis, involvement of the cardiac ganglia with depression, delirium, convulsions, coma, etc.

As to the method of transmission it may be asserted that conveyance by the fly was the principal if not the sole factor. With cases observed among the troops other means may very generally be excluded, towit: Carriers, milk, water or infected vegetables.

The troops arrived in Vera Cruz just at the beginning of the fly season, the city was reeking with accumulations of garbage and manure and spotted with numerous open pit privies, and with dysentery endemic at this center, intestinal infections became at once the principal malady.

Vigorous measures were at once adopted both to prevent the spread of infections from discharges in camp and to the elimination of the numerous foci of infection in the city roundabout.

The immediate screening of mess rooms was made imperative and the work was dispatched as quickly as the necessary material could be assembled. The installation, as far as possible, of water carriage latrine systems was effected for all camps and quarters occupied by troops. The City Health Department eliminated the infectious centers already mentioned. An active fly campaign was instituted, the city dump ordered overhauled and reconstructed on modern scientific principles and incineration instituted. All garbage not incinerated at once in camps was immediately disposed of at the city dump. Likewise, all manure was duly removed from the camps to this location. Picket lines were kept carefully policed, burned over weekly with crude oil

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and kept saturated with the latter product. Fly traps were installed in every mess and proved exceedingly effective in eliminating practically all of these insects that gained admission,* and the decline of the disease which soon followed was coincident with the disappearance or diminution in numbers of the fly. And it might be remarked that the intestinal summer complaints of children in the larger cities, which are for the most part infections by some type of the Shiga bacillus, could be made to disappear or at least be controlled in like manner.

Amœbic dysentery appeared through the season sporadically, although but a few cases were observed. It is to be remarked that a scrutiny of the histories of these cases proved the causative factor to have been present directly at this center. In spite of orders to the contrary, it is possible that the use of green vegetables may in some cases have been the medium of transmission.

While the slight morbidity rate from amœbiasis was not a matter of concern, it is of interest to know of the presence of the protozoa at this point and to remark that active military operations outside of Vera Cruz in the lowlands would probably be attended by a not inconsiderable rate for this malady.

MALARIA.

This disease, as might be expected for this locality, was the greatest source of invalidism. The three varieties of the organism were observed with a predominance of the tertian parasite early in the season, and a great increase in the æstivo-autumnal

COMPARATIVE STATEMENT OF DEATHS FROM MALARIA DURING THE PAST FIVE YEARS.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1910	8	6	11	13	17	17	27	48	29	42	32	16	266
1911	20	10	12	19	18	25	34	40	25	40	25	25	293
1912	14	14	13	7	16	14	15	31	24	17	18	16	199
1913	16	8	6	5	10	11	19	14	16	22	19	16	162
1914	10	6	7	7	12	8	2	2	2	2	..	..	...

type later. The rate increased steadily from the latter part of the month of May, and upon the departure from Vera Cruz a marked diminution in the rate had been accomplished. The month of August was attended by the highest rate of incidence.†

*An effective fly trap consisting of a light wooden frame covered with wire gauze, extending to about one-eighth of an inch of the floor of the trap, was readily constructed from remnants of material on hand. It was baited with sweetened water slightly acidulated with vinegar.

†Malaria.

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The factors contributing to its spread among the troops were for the most part present in Vera Cruz from the start. An additional factor in the Marines depended probably on a considerable number of their command having had recent service in Panama, Culebra, Porto Rico and Nicaragua. At the time of arrival in Vera Cruz of our forces, the drainage system of the town manifested evident lack of care covering a considerable period. The concrete and cement paving installed by the Pearson Syndicate was confined to the center of the town only. Numerous depressions and ruts, capable of retaining standing water, existed in the adjacent sandy streets and roads.

The drainage ditches installed under Dr. Liceaga during the yellow fever crusade in 1906 had been long neglected. On the very edge of the town vast collections of retained water remained as continuous breeding centers for mosquitoes.

Many of the native population manifested evident signs of chronic paludism.

The health records showed a considerable mortality rate for the same and inquiry of native physicians elicited information as to a high rate for this disease. Research as to the malarial index among the native population at various centers in July and August revealed the presence of a ratio of from 2 to 20 per cent in some centers, and even higher rates in sections of the crowded tenements.

It was noted that the incidence of malaria was greatest at points in the suburbs and at outposts. Two principal centers of infection were located at Los Cocos and at the Terminal Round House. It became evident that the source of the infection followed closely the line of the National Railroad, and without doubt this has been one of the principal means of introducing anopheles from the swampy section outside of town as well as transferring numerous infected mosquitoes and malarial natives to the town from outside centers in the lowlands.

The anti-malarial campaign instituted has been vigorous and thorough, covering the following points:

(a) The extensive anti-mosquito work of the Board of Health, which included drainage of all low and swamp areas in and about the city. About sixty miles of ditching was required to attain this end. Filling and oiling of ditches and pools of standing water in the city proper. A complete and thorough system of house to house inspections throughout the city, directed toward the prevention of mosquito breeding on the premises.

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Clearing of areas of low shrubbery and grass in and adjacent to the city.

(b) Careful policing, draining, filling and systematic oiling in camps.

(c) Enforcement of quinine prophylaxis. Three grains were ordered as the minimum dose and raised to six and nine according to severity of infection in localities.

(d) Vigorous treatment of all cases in hospital and after treatment, for two months, to prevent relapses and dissemination of infection.

Treatment of infected natives adjacent to camps and barracks. This latter measure entailed the inspection of the native quarters thereabout and the examination of blood of suspected natives for the parasites.

6. VENEREAL DISEASES.

Vera Cruz presented an aspect common to tropical seaport towns in general in possessing a numerous population of clandestine women whose means of livelihood was derived from the visiting seafaring classes.

The notorious prevalence of venereal diseases among this class of women presented an element of great danger to our troops.

It therefore became necessary upon the occupation to maintain a supervision over this aspect of the social evil, and to this end the conjoint services of the Board of Health and the Police Department were enlisted.

Without the necessity of legislation to effect new measures a ready method of procedure was found in the old Mexican city ordinances which maintained the legality of control without interfering with the private rights of individuals.

The restricted district under Mexican rule was once more placed within its legitimate bounds.

To the Police Department fell the supervision over the order and the recording of the individuals within this district. The Board of Health from its records was enabled to keep a close list of all registered women and a system of inspection was organized which entailed a weekly check on all cases, well or diseased.

The resources of the Bacteriological Laboratory were utilized to the extent of furnishing accurate diagnosis on the various venereal diseases observed at the inspections.

Infected cases were transferred to the Lareto Hospital and kept there until cured. This hospital, a public charitable insti-

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tution, whose services were devoted mostly to the treatment of gynecological cases, adapted itself admirably to the requirements of a lock hospital.

This service was placed directly under the supervision of an Army surgeon and the results obtained fully justified the system. It may be seen that the strict attention paid to the care of infected women greatly reduced the percentage of chances of infection among the troops, when it is stated that at times as many as 125 patients were under treatment.

Aside from the registered women it was found possible to obtain examinations in a numerous floating class of clandestinas; in this category 90 per cent were found infected. In the former class of registered women a constant percentage of 25 infected was observed.

The method of venereal inspections and prophylaxis among the troops as contemplated in General Order No. 17, War Department, 1912, and as amended by General Order No. 71, War Department, 1913, were strictly observed. Detention of infected cases in barracks and camp was carried out and the ample facilities of the field hospitals provided special treatment for cases needing salvarsan administration, etc.

An innovation in the further prevention of venereal infection was introduced by the Board of Health in providing free in all registered resorts prophylactic material similar to that used by the Army and Navy and supplementing it with printed information in Spanish and English as to the prevention of these diseases.

All these measures proved amply effective in keeping down what might have been an inordinately high rate of venereal infection, which often proves of an especially serious character in the tropics.

FIELD HOSPITAL NO. 3.

Upon landing in Vera Cruz the Preparatory School building was selected as best suited for the requirements of a small base hospital.

The two-story edifice, located near the water front and near the Naval School, facing on the public park, was the newest and most modern structure in the city. Being a clean construction of a classic type of architecture with large open colonnades and built around a beautiful open court, it lent itself admirably to the needs of a hospital.

The spacious rooms, numerous in detail, with tiled floors and all modern conveniences in the way of toilets, baths and lighting

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system, were adapted quickly to the accommodation of the sick within a few hours after landing.

The building included ample space for wards and private rooms with a bed capacity of 216 and barrack facilities for the Hospital Corps personnel, as well as living rooms for the medical officers. Ample office room was found on the first floor as well as a separate operating room for the dental surgeons.

The chemical laboratory formerly used by the college on the first floor was already provided with facilities which were quickly utilized by the Army Field Laboratory. Adjacent to the main ward a light, tiled room was set aside as an operating room, the numerous fixtures of which, in the way of aseptic dressing cases, etc., were brought from the Mexican Military Hospital.

As the Field Hospital had brought from their former location in Texas City, Texas, an equipment of semi-permanent fixtures in the way of beds, etc., the field equipment was mostly replaced and kept ready for instant service in case of an emergency.

The complete equipment of eight field wagons and thirty-two mules were conveniently parked in an open space adjacent to the hospital under the care of eight quartermaster teamsters and were kept ready for use.

Shortly after its organization the effectiveness of the hospital was increased by the installation of an X-ray machine and various equipment found in well appointed institutions.

Twelve members of the Army Nurse Corps, female, were later sent from the United States and were housed comfortably in a private building on the water front near the hospital.

This institution, complete in detail, handled all the sick for the Army during the entire period of the occupation with the exception of a short interval pending the evacuation of the port, when the cases were transferred to the Transport Hospitals in the harbor.

The work done included every class of medical and surgical procedure and the excellent results obtained attested the success of the establishment.

MEDICAL RESERVE SUPPLY CO. NO. 5.

The expedition was accompanied by Medical Reserve Supply Co. No. 5, with a personnel of one medical officer and five enlisted men.

A transportation unit for five wagons was available in case of active field service.

The depot was centrally located in a spacious section of the

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old artillery barracks, adjacent to the Field Hospital. Ample shelving was provided and storage room for the Ambulance Company equipment and the Field Hospital equipment complete ready for use.

This depot supplied the medical material for the entire expeditionary force, including the U. S. Marines.

In addition, the Medical Supply Officer acted as Disbursing Officer for the medical accounts, including that of laundry. This latter factor was well and centrally managed by the depot, thus obviating the numerous and detailed accounting for the laundry of the smaller organizations.

FIELD LABORATORY.

A field laboratory accompanied the expedition and was conveniently installed in the room formerly occupied as a laboratory by the Mexican Preparatory College.

Additions were made upon the arrival of Major F. F. Russell, Medical Corps, on June 4th, and the scope of the work enlarged to include all classes of laboratory work. Careful examinations were made of the stools of all dysentery cases entering the hospital and blood examinations of all malaria suspects. The thorough work done in the investigation of these maladies made it possible to render a report in detail of every case treated during the occupation.

PROVISIONAL AMBULANCE COMPANY.

In order to be prepared for active operations in the field and to provide for the instruction of the Hospital Corps, a provisional ambulance company was organized.*

Material was provided for the establishment for dressing stations and the ambulances of the organizations were utilized as a means of transportation.

The entire personnel was made up of a selected list drawn from the regimental organizations, the details being made so as to permit, in case of active field service, of a free mobile ambulance and dressing station service and a sufficient regimental medical aid personnel as well. The senior medical officer superintended the instruction and commanded the unit.

Number of officers, two; number of enlisted personnel, twenty-five; number of ambulances, four; number of pack saddles, two.

SANITARY SERVICE, U. S. MARINES.

The First Advance Brigade, U. S. Marine Corps, formed part

*Ambulance Company No. 3, attached to the Second Division, Texas City, Texas, did not accompany the Expeditionary Forces.

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of the U. S. Expeditionary Forces. Its medical and sanitary service received its supplies from the Army and was under the jurisdiction of the Chief Surgeon, U. S. Expeditionary Forces, but its personnel was composed exclusively of officers and enlisted men of the Medical Corps of the Navy. It had a separate Field Hospital and all reports of record were rendered to the Naval Department. A daily sick report and report of personnel and equipage were rendered to the Chief Surgeon, U. S. Expeditionary Forces, for his information. The morbidity of the Marine Brigade differed in no essential particular from that of the Army, and the same sanitary orders and regulations governed both.

DEPARTMENT PUBLIC HEALTH.

The Navy and Marines, when they entered the city of Vera Cruz on April 21, 1914, found an Inspection and Quarantine Service of the port controlled and paid for by the Mexican Federal Government, of which Dr. Manuel I. Iglesias was Chief, with Dr. Manuel M. Macias as his assistant. There was a Sanitary Inspection Service in the city which was in charge of a Board of four members. This Board, which was designated "The Sanitary Service Against Yellow Fever, Malaria and Infectious Diseases," was originally appointed in 1907 by the Federal Board of Health of Mexico.

The city ordinances show that the scope of the activities of this Board was much wider than its name implies, as described farther on in this report. The expenses of this service were equally shared by the Federal and State governments, no part being paid by the city.

The city furnished funds to maintain an Orphan Asylum, a hospital for men (which included an isolation hospital as an adjunct) and a hospital for women, which were controlled by a number of the city aldermen, constituting a Board of Charities.

The transition from this state of affairs to that which was maintained during the period of American occupation was accomplished in several stages. First, in the action which occurred when the city was taken by the Navy and Marines; battalions and regiments were assigned different areas to occupy and control while street fighting was in progress. The medical officers accompanying these troops performed the duties of health officers, each in his own section, until a city administration was re-established. Sick and wounded Americans were cared for on the Naval Hospital Ship *Solace*. A dressing station was established in the Railroad Terminal and a station for slightly

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wounded was located at the boat landing near the Terminal Building.

Medical Director L. W. Spratling, U. S. Navy, supervised all work of the Sanitary Service on shore. On April 23rd Dr. I. A. Campbell, A. A. S., U. S. Public Health Service, located at Vera Cruz in charge of the Quarantine Service of the port, and Surgeon D. N. Carpenter, U. S. Navy, in charge of the city hospitals. In the courtyard of San Sebastian, the hospital for men, there were 57 dead, and in the hospital there were 68 wounded. About 168 bodies of Mexicans were collected throughout the city and buried or burned. Buildings suitable for municipal and military purposes were cleaned, disinfected and prepared for occupancy.

About one week after the occupation of the city, Surgeons G. M. Guiteras and R. H. von Ezdorf, U. S. Public Health Service, arrived and took charge of the civil sanitary work, including that of the Quarantine Office of the port, retaining Dr. Campbell as assistant.

The officers and employees of the City Sanitary Service were asked to continue in their positions, but they insisted that they could not accept office nor pay from an invading force. Inasmuch as the city was suffering from an epidemic of smallpox, it was pointed out to them that, for the sake of humanity, they could continue to perform their duties, and those who did not accept this view of the matter were compelled to render such assistance as they could. A few left the city, but it must be said to the credit of the majority that they worked conscientiously and rendered efficient service to the city and to their countrymen at a time when their help was greatly needed.

On April 30th the Army took control of the situation on shore and Major F. M. Hartsock, Medical Corps, assumed supervision of the Sanitary Service, military and civil, which he administered until the arrival of Colonel H. P. Birmingham, Medical Corps, on May 13th. First Lieutenat A. J. Hoskins, M. R. C., of Pachuca, Mexico, a refugee here, was appointed Superintendent of Hospitals for the city, and was relieved June 4th by Captain Julian M. Cabell, U. S. A., retired, who continued in this position during the remainder of the American occupation, Lieut. Hoskins acting as assistant. The hospitals continued to operate as civil institutions, the sick of the Army and of the Marines being cared for in separate hospitals established for the purpose.

In the organization of the City Sanitary Service, Surgeon Gui-

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teras had taken preliminary steps when he was relieved on Ma 13th by Major T. C. Lyster, Medical Corps, as Director of Pul lic Health. Major R. E. Noble, Medical Corps, was assigne as his assistant, and the following specialists, officially designate as Sanitary Experts, were ordered to Vera Cruz from the Can Zone: William D. Wrightson, Sanitary Engineer; James T Bowles, Chemist; E. W. Mitchell, specialist in anti-mosquit work; and Messrs. J. J. McGuigan, Charles Parker and E. I Gayle, all of whom were experienced in the methods of inspe tion and administration used under General Gorgas' administr tion in Panama. Sergeant 1st Class Elmer H. Simons, Hospit Corps, rendered valuable service in the clerical division. Add tional assistance was obtained by utilizing the services of civilia refugees—doctors, engineers, clerks, etc., who were temporari in the city. After about four months Majors Lyster and Nob were relieved, respectively, by Lt. Col. H. D. Snyder and Maj E. E. Persons, Medical Corps, the former being the Director Public Health when the American troops were withdrawn.

The activities of the department covered a field which may l subdivided as follows:

1. *Inauguration of Preventive Measures Against Disease, E pecially Acute Infectious Disease.*—In the low-lying territo adjacent to the city, sixty-one miles of ditches, small and larg were dug to drain areas which afforded breeding places for mo quitoes. Sixty-nine thousand gallons of crude oil were expend in covering deposits of water. Usual precautions were taken preventing contagion and the compulsory disinfection of prer ises after infectious diseases were carried out; 46,620 vaccin tions against smallpox were administered.

2. *Sanitary Inspection of the City and the Issuing of Orde for the Correction of Defects.*—The city was covered at lea once every five days by a force of inspectors. Their reports dea particularly with accumulation of water in receptacles or in poo which offered breeding places for mosquitoes; with defective su face or sewage drainage; with water leaks and with accumul tions of garbage or other waste, especially with accumulatio of manure and other materials favoring the breeding of flie Failure to correct defects on notification was followed by pros cution in the police courts.

3. *Supervision of Foods and Drinks.*—Inspection and exam nation of milk, flour, butter, lard, coffee and foodstuffs in gener and of alcoholic liquors was carried out.

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4. *Building Regulations.*—Plans for proposed buildings were examined, from a sanitary standpoint, and the approval of the building department was preliminary to the issuance of a permit for construction. Also buildings intended for use as stores or business places of any kind were inspected and applications for licenses approved.

5. *Venereal Disease Regulations.*—The provisions of the Mexican law requiring the weekly examination of prostitutes were enforced and cases requiring treatment were taken to the hospital. Prophylactic treatment in each house in the restricted district was also available.

6. *Medical, Dental and Burial Regulations.*—Under Mexican law the inspection and approval of credentials of physicians and dentists before they receive licenses to practice, and the issuing of burial permits and the witnessing of burials form part of the work of the Medical Department.

7. *Management of Public Charities.*—As stated above, the management of public charities, which pertains to the Board of Charities under Mexican administration, was taken over by this department and superintended by Captain Cabell. The policy adopted contemplated the least interference possible with the existing system of management, and to that end the entire administrative and operating force in each institution was retained so far as practicable. It was found better under existing conditions to endeavor to make efficient the system in vogue rather than to attempt to introduce the radical alterations which would be required to bring these institutions to American or European standards.

8. *Statistical Work.*—Collection and recording of statistics was particularly difficult and unsatisfactory. The laws in this matter are not sufficient to procure data under normal conditions, and proved especially inadequate under existing circumstances. For example, parents refused to have births recorded during the American occupation for fear that the children would be held to be American citizens.

9. *Laboratory Services.*—The work of this department has been greatly facilitated and advanced by the co-operation of the Army Field Laboratory, under charge of Major F. F. Russell, Medical Corps, who opened it to the civilian physicians and made it practicable to require laboratory confirmation of diagnosis of malarial fever, typhoid fever and dysentery. The services of the laboratory were greatly appreciated by the better class of civilian practitioners.

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Sterilization of Drinking Water by Calcium Hypochlorite in the Field*

By Wm. J. Lyster, Major Medical Corps, U. S. Army.

EVER since the discovery that micro-organisms are the causative agents in camp diseases, typhoid and the dysenteries, and that these are frequently water-borne, efforts have been made, by rendering water safe for drinking purposes, to prevent their being spread through that medium. It was early appreciated that boiling was an effective means of destroying these disease organisms, but, while apparently a simple procedure, it has often been impracticable to carry it out in the field. The desire and necessity to drink are both so frequent and so imperative that if we wish the soldier to use a safe water, it must be supplied so readily and conveniently that it will be easier for him to obtain such water than any other.

With the realization of the important part played by potable drinking water in the health and efficiency of armies, and, therefore, in the ultimate fate of campaigns, efforts have been directed toward devising some appliance that would meet these requirements in the camp and in the field. As already stated, the simple procedure of boiling water, while effective, was found to be impracticable, and modifications of the crude process of boiling water in a receptacle and waiting for it to cool, were introduced. One of the best of these was the Forbes' sterilizer by which water was heated to a boiling point in small amounts and the heat abstracted from it by the cooler water entering the appliance. The water furnished for drinking that came from this device was only about four degrees higher than when entering it, and was immediately ready for consumption. The disadvantages of the appliance were those common to all others heretofore devised—the necessity of transporting in the field a bulky and weighty impedimentum, and the necessity of providing fuel of some kind. The output was only twenty gallons an hour.

The Darnall filter is an effective and useful piece of field equipment, but also labors under disadvantages of bulk and weight and of rather small output, its best efficiency being fifty gallons an hour. The wheeled appliance used by the French in Morocco sterilized water by the use of the violet ray. It is at

*Read at the Twenty-third Annual Meeting of the Association.

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once apparent that this has only a limited field of usefulness, as troops are often in rough country which forbids the use of vehicles of any kind. The same objection applies in the case of the large metal wheeled sterilizers used by the Germans. In addition to the lengthening of the transport column by such vehicles, it can be stated that they would not often be near enough to the troops which they are supposed to serve to keep them constantly supplied with potable water.

It has been long recognized that any device to be really effective must be of such a character that it can, under all circumstances, be carried into the field and be as close to the soldier as is his canteen. It is of little use to rely for nine days upon an appliance for our potable water and on the tenth day, when most needed, because of the poorer quality of the water, find it too far from the troops for them to wait to be supplied by it.

With these points in view, attention was directed to the utilization of hypochlorite of calcium as a means of rendering drinking water in the field potable at all times. The water supplies of large cities have been treated with this chemical for a number of years with entire satisfaction, and interesting data are at hand to demonstrate the decrease of typhoid fever in cities that introduced this process in connection with their water supplies. It became a question of applying this method to the treating of small quantities of water in the field. In 1910 I began some experiments on the water in the swimming pool at the University of Pennsylvania at the direction of Dr. Alexander C. Abbott, Director of the Laboratory of Hygiene of that institution, and, finding the ease with which highly contaminated water was sterilized with small amounts of hypochlorite of calcium, I immediately tried to apply it to the question of sterilizing water in the canteen. The simple thing to do seemed to be to introduce the required amount of this chemical into the water in a canteen and in that way render, in a few moments, the water safe for drinking. Difficulties were encountered in retaining a sufficient amount of the chlorin, the active agent in the chemical, for a sufficiently long time to make it of use in the field. This element is so active that it is readily dissipated by heat, light and moisture. There were also other drawbacks, among them the difficulty in supervising the introduction of the chemical into the canteen by each soldier. The question then became one of ascertaining the smallest convenient amount of the chemical that would retain the chlorin active for a considerable length of time. It was found from actual experiments that a gram, or

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Sterilizing Bag as Carried on Soldier's Back.

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about fifteen and one-half grains, of the hypochlorite which is sold in the market as calcium chloride, could be sealed hermetically in a small glass tube and still be efficient at the end of ten months, if there was a reasonable amount of chlorin in the chemical to start with. In these experiments I was greatly assisted by Major Reuben B. Miller, Medical Corps, Army Medical School, Washington, D. C., who made the chlorin determinations in the laboratory of which he is in charge, and who also assisted me with many valuable suggestions. I am also indebted to Dr. Daniel W. Fetterolf, Chemist, Medical Supply Depot, New York City, for similar work at the Supply Depot Laboratory, and for drawing up the specifications under which the calcium hypochlorite was bought. After considerable experimenting, hypochlorite of calcium with an amount of chlorin between narrow limits (30 to 32 per cent) was decided upon. Such a hypochlorite in amounts ranging from 0.75 to 1.25 grams, when sealed hermetically, and kept at moderate temperatures in the dark, will be found efficient for at least ten months afterward. In this form it is easy to obtain in the open market a supply of hypochlorite at very small expense.

This portion of the problem having been solved, it became necessary to devise a portable container to hold water for a sufficiently long time to sterilize it and supply it to the canteens. A canvas bag of specially woven flax, twenty inches in diameter and twenty-eight inches in length, was devised in 1913, giving sufficient capacity to supply a company of infantry at war strength with a canteen-full of water for each officer and man. This bag at the opening was sewn over a galvanized iron ring, hinged at one diameter, which permitted the bag to be folded. It is supported when in use by two pieces of hemp rope, 3 feet 2 inches in length spliced to the ring at points equi-distant. The bag is fitted with five self-closing faucets just above the bottom seam, spaced at equal intervals. We have then a container that weighs about seven and one-half to eight pounds, that can be folded up into a convenient and readily portable package not too large or heavy to be carried over the infantry pack. My thanks are due to Lieut. Col. R. McA. Schofield, Q. M. Corps, for cordial co-operation and valuable suggestions in the details of construction of the container. Sufficient chemical can be carried in sixty glass tubes to supply an infantry company at war strength with five canteens of water a day per capita for twelve days. Such a package of these tubes weighs ten ounces and measures 6½x3⅓x2¼ inches.

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Under ordinary circumstances this bag when filled with water will have its contents rendered safe in about five minutes. Experiments have been carried out by Captain Edward B. Vedder, Medical Corps, and for whose assistance I am greatly indebted, which demonstrate that in the strength used, viz., one part of active chlorin to about 500,000 parts of water, the organisms causing amœbic or tropical dysentery, and cilia are destroyed under ordinary conditions as found in water, in ten to fifteen minutes. In one experiment it was shown that the vegetative form of amœbæ was destroyed in fifteen minutes. After the bag has been filled with water, the calcium hypochlorite contained in one tube, which is easily broken in the hands at the point marked by a file, may be shaken directly onto the surface of the water or it may be added to a small amount of

TABLE A.

Time after introducing hypochlorite.	Sample taken at	Result of examination
5 minutes	Bottom	Amœbæ and cilia.
12 "	"	Amœbæ and cilia.
15 "	Top	Many amœbæ and no cilia.
20 "	Bottom	A few amœbæ and many cilia.
25 "	"	A few amœbæ and many cilia.
30 "	"	No amœbæ and no cilia.
30 "	Top	No amœbæ and no cilia.

water in any ordinarily clean container and poured directly into the water in the bag; no stirring is necessary.

The effect of hypochlorite of calcium in solution on the typhoid, colon and cholera organisms is so well known that further remark here is unnecessary except to insist that the solution be of sufficient strength to render safe any water that would ordinarily be used in the field for drinking purposes. The results of an experiment conducted by Captain Vedder are here shown. The canvas bag was filled with 46 gallons of tap water (Washington City water supply). To this was added 500 c. c. old bouillon culture of amœbæ. These were present in large numbers in both the active and encysted state. Numerous cilia were also present. Samples of water were taken after a few minutes from both the top, and drawn from the faucet at the bottom. These specimens on examination showed both amœbæ

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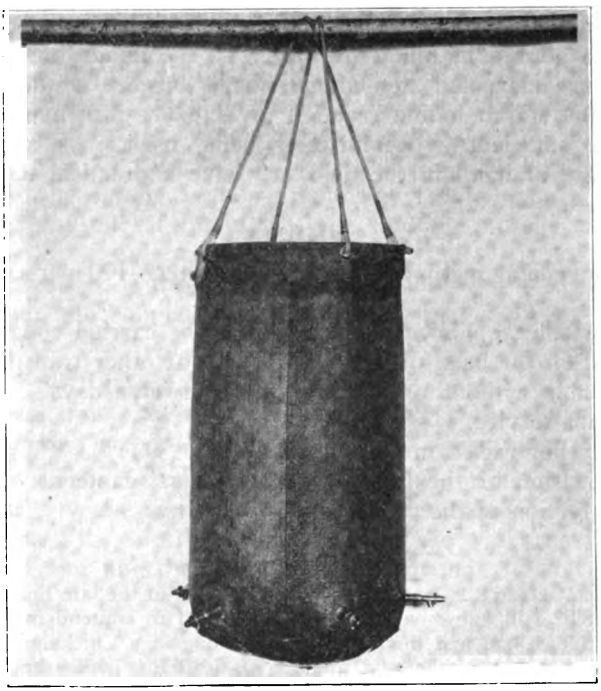
and cilia. A weighed amount of calcium chloride, containing a definite amount of chlorin ascertained by previous examination, was added to a few ounces of tap water and poured into the water in the bag. In the amount added it gave a proportion of one part of chlorin to 500,000 of water. Specimens were drawn



Bag for Sterilization of Drinking Water by Calcium Hypochlorite.

at intervals and showed the results of the examination were as stated in Table A.

The severity of this test can be appreciated when it is understood that the bouillon culture which was heavily laden with the organisms gave a proportion to the water in the bag of 1 to 150; undoubtedly a much heavier infection than would ever be taken in drinking water.

As the oxidation of organic matter in water through the agency of hypochlorite proceeds best in clear water, it is desirable to remove fine clay and other comparatively coarse matters be-

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fore introducing the hypochlorite. It is probable that in the field many surface waters will carry suspended matter to an extent that may interfere slightly with the hypochlorite process. To reduce this matter in amount, a piece of Scotch outing flannel is used. This cloth, weighing one ounce, is fastened by tapes sewn to it to the ropes by which the bag is suspended, so it almost covers the opening of the bag. Through this cloth the water is poured in filling the bag. In the hands of a medical officer or instructed non-commissioned officer of the hospital corps, the starch iodine reaction gives exact information as to whether sufficient hypochlorite is being used. As iodine and starch are at hand in the field, we have a practical method of control.

SUMMARY.

A convenient method of sterilizing water—100 per cent bact. efficiency.

A portable appliance, light enough to be carried constantly in the field on the back of one man in lieu of other transportation.

Available without renewal for ten or twelve days.

Prompt service.

Water not raised in temperature.

Supervision of the filling of the soldiers' canteens.

Disinfection of the canteen.

DISCUSSION.

COLONEL GRIFFITH: Anyone who was engaged in the late Spanish "running match" will know with what we have had to contend in our water supply. If we had had this kind of thing long ago, Chickamauga would not have sent home the great number of dead that were sent. I think this is a grand and beautiful work that has been shown us by Major Lyster, and should be brought to the attention of the National Guard from one end of the country to the other.

MAJOR ROGERS: I want to inquire the amount of calcium hydrochloride that was used in this tank of water?

MAJOR LYSTER: Fifteen grams.

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A Proposed Method of Pitching the Field Hospital

By Wm. W. Reno, Major Medical Corps, U. S. Army.

THE field hospital, with its tentage for the men included, utilizes five types of tentage, viz.: the mess, pyramidal, small pyramidal, tropical and ward tents. Sometimes the wall tent is also used for bath tents or for other purposes. Also some field hospitals are still equipped with the obsolete hospital tent.

The following simple method of pitching tentage can be used for pitching any one of the above tents and the storage tent in addition.

The explanation of the pitching occupies but a few lines and is far shorter and simpler than any method that has been seen. It is also very effective. The notes are added merely to assist in producing speed.

Instructions for pitching pyramidal, small pyramidal, ward, wall, regulation hospital, tropical hospital, mess and storage tents.

When the guy and wall pins of any of these tents are driven into the ground they outline two rectangles, the wall pins forming the inner one, and the guy pins the outer one.

To pitch tent. Locate and drive the four corner pins of each rectangle. Unfold tent on inner one and pin down its corners. Drive all wall and guy pins. Place all guy ropes over guy pins, giving all slack possible. Also place all wall loops over wall pins, except on one side. Also at this time loosen the two corner wall loops on this side. From this side insert upright (or uprights. Also insert ridge, fly, hood and storm guys if any.) Raise tent. Now place remaining wall loops over wall pins and tighten guys. (For ward or tropical tent insert corner uprights also.)

NOTES.

1. Sizes of inner and outer rectangles of above tents: Pyramidal, inner rectangle 16x16 feet, outer 28x28 feet. Small pyramidal, inner 9x9 feet, outer 18x18 feet. Regulation hospital, inner 14 feet 6 inches by 14 feet 3 inches, outer 28x20 feet. Ward, inner 16x50 feet, outer 32x66 feet. Wall, inner 9x9 feet, outer 18x13 feet. Tropical tent, inner 15 feet 7 inches by 14

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feet 3 inches, outer 28x24 feet. Storage, inner 17 feet 10 inches by 20 feet 5 inches, outer 30x26 feet.

2. For field or maneuver purposes the corner pins can be located with sufficient accuracy as follows: Tie door (or doors) of tent together at bottom. Pull corner loops of tent taut on ground. These loops then mark points for driving corner wall pins.

To locate the four corner guy pins. For pyramidal, small pyramidal and ward tents. Measure 8 or 6 or 11 feet respectively from each corner wall pin in line with corner tent seam. The end of each measurement marks the point for driving a corner guy pin. For wall, regulation hospital, tropical hospital and storage tents, measure the required distance (as ascertained from note 1) from a corner wall pin to the line for the outer rectangle. From this point measure at right angles the required distance to point for corner guy pin. Or the correct distance can be obtained by measuring diagonally from the corner wall pin.

3. To locate points for driving wall pins. When tent is pinned to the ground by its corner pins its wall loops indicate points for driving all remaining wall pins. To locate remaining guy pins. Stretch ropes between corner guy pins. Pull guy ropes across these ropes. Each intersection marks a point for driving a guy pin. Or points can be located by sighting.

4. If great accuracy is desired in location and alignment of tent use a tape measure for locating rectangles, pin distances and bases of uprights. For field and maneuver purposes all measurements needed can be obtained from tent pins, uprights, etc. A wall pin is 16 inches long, a guy pin 24 inches. The wooden upright of the pyramidal tent is 7 feet 10 inches long (say 8 feet), its tripod 4 feet 8 inches (say scant 5 feet). The large upright of a ward tent is 12½ feet long. (Four of them in line make 50 feet, the length of the tent.) The small upright of the ward tent is 5 feet 3 inches long. (Three of them in the almost give 16 feet, the width of the tent.) The upright of a small pyramidal tent is 9 feet 4 inches long. If the lengths of the wall and guy pins are remembered all other measurements can be found from them.

5. If it is desired to raise the tent quickly drive only the four corner guy pins and such others as are necessary to secure the tent when pitched. Raise tent. The remaining guy and wall pins can then be driven.

6. As pin driving is the longest single operation in tent pitch-

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ing, each squad member should be provided with an axe. Eight men is the maximum number needed for pitching any one of these tents.

To strike a pyramidal, small pyramidal, ward, wall, regulation hospital, tropical hospital, mess or storage tent.

Remove all pins except the four corner guy pins (and one on each side of each interior upright, if any). One man holds each guy. When ground is cleared tent is lowered gently. (With pyramidal tent the two rear corner wall pins remain in the ground for folding purposes.)

To fold the above tents (except for pyramidal). Spread the tent smoothly on ground by pulling at apex. Fold in ends until a rectangle is formed. Begin at apex and make a two-foot fold. Throw in hood, storm guys, etc., if any. Continue folding until tent is in a long rectangle 2 or 3 feet wide. (Do likewise with fly, if any, and place tent on it.) Now begin at either end and roll snugly leaving out two end guys. (For ward or other large tents leave out four guys.)

When this simple tent drill is used, any army tent except the shelter, can be pitched with great rapidity. The pitching of a field hospital moreover involves merely the additional process of locating tent sites. These sites are located as follows: (The essential hospital elements only will be considered, as the other tentage is variable both as to presence and location.)

TO PITCH A FIELD HOSPITAL.

To illustrate the method of pitching a field hospital, a ground plan of the tentage, with wards and streets numbered, is given. (See Figure 1.) This is the official ground plan as outlined in paragraph 527, Sanitary Troops Manual, 1914.

An officer or non-commissioned officer first examines the site for the field hospital, and if satisfactory, decides as to the facing of the hospital. He carries with him 9 slender iron rods, each about 3 feet long, each rod having an eye at one end. A piece of white bandage is tied through each eye. These rods are to be used as markers in laying out the hospital. (Long tent pins can be used as markers if desired. The iron pins, however, need no axe for driving, can be placed rapidly by one man, and are more easily seen that tent pins.) A marker is placed where the right front corner pin of the operating tent is to be driven, and one each for the right front corner pin of the office, store tent and six wards. These markers can be placed by pacing the various distances, or by using a tape line.

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However, for field, maneuver or war service a tape line causes a waste of valuable time, and is unnecessary. For all practical purposes the distances needed can be found by pacing. With a little practice very accurate work can be done by pacing and lining the markers upon each other. In this manner the plan for pitching the field hospital can be outlined upon the ground in a few minutes. For instance, the man carrying the markers, after scanning the ground in order to make sure that the site has enough length and width, places a marker in the ground for the right front corner pin of the operating tent. From here he takes thirteen paces straight across the front of the area and places a marker for the right front corner pin of the office tent. At thirteen paces further in same line a marker is placed for the right front corner pin of the store front. Starting from this store tent marker, at right angles to markers already placed and straight toward rear of area at thirteen paces a marker is placed for the right front corner pin of Ward 3. Thirty paces more toward rear in same line a marker is placed for the right front corner pin of Ward 6. Going back to the office tent marker (center one in front) he paces as from the store tent marker locating markers for Wards 2 and 5. Returning to the operating tent marker (the first one placed) he paces as he did from the office tent marker in order to locate markers for Wards 1 and 4.

If the area is not large enough for the distance indicated they can be contracted somewhat. It will aid in

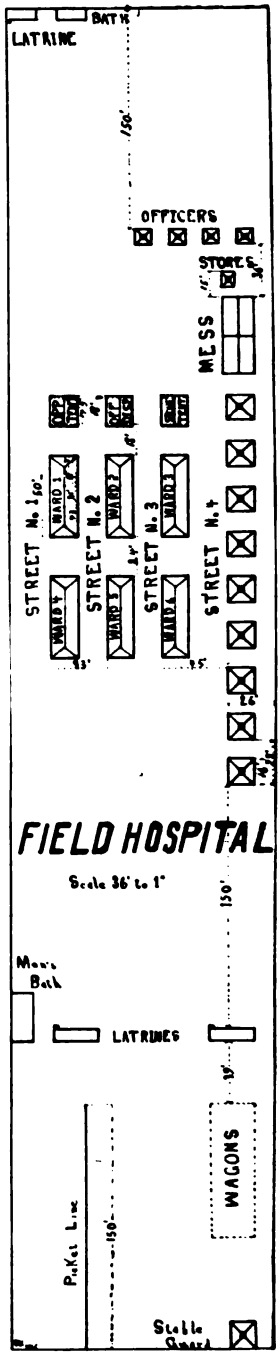

Figure X

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squaring the area, if, after the first three markers are placed along the front, three markers with red flannel bandages attached are carried to the extreme rear of the hospital site in order to fix lines for the wards.

When all the markers are placed, the wagons carrying tentage drive between them and unload tentage at proper places.

While the tentage is being pitched wagon No. 1 is unloaded at the kitchen, and the other wagons at proper places. The picket line is then established, the animals placed thereon and the wagons parked. A temporary sink is dug and screened in an out-of-the-way place the first thing after the wagons and men reach the camp.

TO STRIKE AND FOLD THE TENTAGE OF A FIELD HOSPITAL.

When the single, simple method of striking and folding all tentage herein outlined is followed this process is apparent without explanation.

Never before has a single method for pitching all large army tentage been proposed. This method, too, is simplicity itself.

It is believed that all organizations both in the army and the national guard should give this method a thorough trial.

As the mobility of a field hospital depends to a very great extent upon ability to pitch and strike tentage rapidly, it is believed that knowledge of one simple method of pitching every variety of tentage is essential; and likewise the ability to lay out the hospital site by pacing.

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Mess Efficiency

By Powell C. Fauntleroy, Major Medical Corps, U. S. Army.

1. The following has been found to be a simple and efficient method in controlling the cost of a hospital mess and insuring at the same time a proper saving:

2. It is offered as a suggestion, believing that it may be of use to similar organizations.

3. The several bills of fare, with cost and statement of amount of foodstuffs purchased, together with the number of men in the detachment and patients in hospital, are submitted each morning to the Surgeon.

4. The following bills of fare made by Sergeant First Class John Hodgins, H. C., have been in use at this hospital and have been found satisfactory to all concerned, at the same time they made possible a saving, which is considered the maximum that should be made under the present market prices. This saving amounts to about 21 per cent of the total value of the ration allowed.

5. Such a statement before the Surgeon, with a list of current market prices, together with a personal inspection, affords all the data necessary to insure the desired daily saving and to maintain a satisfactory mess.

6. The hospital fund can thus be protected each day from loss and thereby maintained at the desired figure, provided there is intelligent co-operation between the Mess Sergeant and the Cook.

7. By thus being able to regulate the savings each month, the Surgeon is in a position to insure regular payments on such things as he may desire to secure for the amusement of the detachment and patients, viz.: phonographs, billiard tables, magazines and newspapers, boxing gloves, etc.

Ft. Monroe, Va., March 5, 1914.

BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 22, 1914.

DINNER.

Puree of chicken and rice	$0.10
Chicken croquettes	2.10
Creamed gravy	.20
Mashed potatoes	.35

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Cold slaw	.15
Chocolate pudding	.30
Bread	.15
	$3.35

SUPPER.

Cold sliced ham	$1.60
Baked mashed potatoes	.20
Bread and tea	.30
	$2.10

BREAKFAST.

Fried liver and onions	$1.10
Butter-toast and coffee	.65
	$1.75
Total	$7.20
Value of ration	7.78
Savings	.58

Off	0
H. C.	26
E. M.	5
Civ.:	
Male	1
Female	0
Nurses	0
Total	32

Quantities: Chicken, 5 pounds; veal, 13 pounds; rice, 3 pounds; potatoes, 18 pounds; cabbage, 4 pounds; cocoa, 1 pound; ham, 15 pounds; liver, 15 pounds; butter, 2 pounds; bread, 24 rations; coffee, 2 pounds; tea, 3 ounces.

BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 23, 1914.

DINNER.

Pea soup	$0.30
Roast beef	2.00
Gravy	.10
Baked potatoes	.30
Bread and coffee	.30
	$3.00

SUPPER.

Macaroni and tomatoes	$1.00
Stewed fruit	.30
Bread and tea	.30
	$1.60

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BREAKFAST.

Potato cakes and gravy	$0.30
Crisps and milk	.40
Toast, butter and coffee	.70
	$1.40
Total	$6.00
Value of ration	7.78
Savings	1.78

Off	0
H. C.	25
E. M.	4
Civ.:	
Male	1
Female	0
Nurses	0
Total	30

Quantities: Peas, split, 4 pounds; beef, 20 pounds; potatoes, 18 pounds; macaroni, 6 packages; tomatoes, 4 cans; fruit, 3 pounds; crisps 2 packages; milk, 3 cans; butter, 2 pounds; bread, 24 rations; coffee, 1½ pounds.

BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 24, 1914.

DINNER.

Baked pork and beans	$1.00
Spiced pickles	.20
Boiled potatoes	.30
Mince pie	.40
Bread and coffee	.30
	$2.20

SUPPER.

Cold ham	$1.50
French fries	.25
Bread, butter and tea	.45
	$2.20

BREAKFAST.

Country sausage	$1.20
Buckwheat cakes and syrup	.20
Bread, butter and coffee	.60
	$2.00
Total	$6.40

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Value of ration	7.78
Savings	1.38
Off	0
H. C.	25
E. M.	4
Civ.:	
Male	1
Female	0
Nurses	0
Total	30

Quantities: Beans, 8 pounds; pickles, 4 pounds; potatoes, 18 pounds; ham, 8 pounds; sausage, 10 pounds; bread, 24 rations; butter, 2 pounds; coffee, 2 pounds.

BILL OF FARE.

February 25, 1914.

DINNER.

Soup	$0.20
Roast pork and gravy	2.00
Baked potatoes	.30
Succotash	.40
Pudding and sauce	.30
Bread and coffee	.30
	$3.50

SUPPER.

Frankfurters	$1.20
Corn fritters	.30
Pie	.30
Bread and tea	.30
	$2.10

BREAKFAST.

Hamburger steak and gravy	$1.50
Baked potatoes	.30
Bread and coffee	.30
	$2.10
Total	$7.70
Value of ration	7.78
Savings	.08
Off	0
H. C.	25
E. M.	3
Civ.:	
Male	1
Female	0
Nurses	0
Total	29

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Quantities: Fresh pork, 16 pounds; potatoes, 25 pounds; corn, 3 cans; lima beans, 4 pounds; pudding, 8 pounds; franks, 10 pounds; beef, 10 pounds; bread, 24 rations; coffee, 2 pounds; tea, 3 ounces; butter, 2 pounds.

BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 26, 1914.

DINNER.

Boiled corned beef	$1.80
Cabbage	.15
Potatoes	.15
Turnips	.15
Raisin pie	.20
Bread and coffee	.30
	$2.75

SUPPER.

Kidney stew	.90
Corn cake	.40
Bread and tea	.30
	$1.60

BREAKFAST.

Fried hominy	.50
Tomato sauce	.30
Butter and syrup	.50
Toast and coffee	.30
	$1.60
Total	$5.95
Value of ration	7.78
Savings	1.83

Off	0
H. C.	25
E. M.	5
Civ.:	
Male	1
Female	0
Nurses	0
Total	31

Quantities: Corned beef, 17 pounds; cabbage, 10 pounds; potatoes, 16 pounds; turnips, 12 pounds; raisins, 3 packages; kidneys, 9 pounds; corn meal, 6 pounds; hominy, 6 cans; tomatoes, 3 cans; butter, 2 pounds; syrup, ½ gallon; bread, 24 rations; coffee, 2 pounds.

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BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 27, 1914.

DINNER.

Baked hog fish	$1.60
Creamed onions	.30
Mashed potatoes	.30
Rice pudding	.20
Bread and coffee	.30
	$2.70

SUPPER.

Salmon salad	$0.60
Stewed lima beans	.40
Sponge cake	.40
Bread and tea	.30
	$1.70

BREAKFAST.

Baked corned beef hash	$1.30
Crisps and milk	.40
Butter, bread and coffee	.60
	$2.30
Total	$6.70
Value of ration	7.78
Savings	1.08

Off	0
H. C.	23
E. M.	5
Civ.:	
Male	1
Female	0
Nurses	0
Total	29

Quantities: Fish, 22 pounds; onions, 12 pounds; potatoes, 15 pounds; rice, 3 pounds; salmon, 8 cans; lima beans, 4 pounds; corned beef, 10 pounds; crisps, 3 packages; milk, 3 cans; butter, 2 pounds; bread, 24 rations; coffee, 2 pounds.

BILL OF FARE.

Post Hospital, Ft. Monroe, Va., Feb. 28, 1914.

DINNER.

Baked pork and beans	$1.00
Cold slaw	.20
Boiled potatoes	.30
Mince pie	.30
Bread and coffee	.30
	$2.10

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SUPPER.

Mock curried chicken and rice	$1.10
Lemon custard	.40
Bread and tea	.30
	$1.80

BREAKFAST.

Fried ham and eggs	$2.20
Bread, butter and coffee	.60
	$2.80
Total	$6.70
Value of ration	7.78
Savings	1.08

Off	0
H. C.	23
E. M.	5
Civ.:	
Male	1
Female	0
Nurses	0
Total	29

Quantities: Beans, 8 pounds; pork, 2 pounds; cabbage, 5 pounds; potatoes, 15 pounds; mince meat, 3 pounds; veal, 6 pounds; rice, 3 pounds; lemons, ½ dozen; picnic ham, 11 pounds; eggs, 6 dozen; bread, 20 rations; butter, 2 pounds; coffee, 2 pounds.

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A Guide to Facilitate the Organization and Administration of Independent Sanitary Commands in the Field

Prepared in the Office of Evacuation Hospital No. 1, Galveston, Tex., Under the Direction of Major A. E. Truby, Medical Corps, U. S. Army.

By George P. Peed, Captain Medical Corps, U. S. Army.

THE object of this paper is to furnish in a collected form certain information that may be of assistance in organizing and administering hospitals in the field.

In the event of war an experienced administrative personnel will not be available for many hospitals, hurriedly organized, and it does not require an overstretched imagination to picture conditions more or less embarrassing for newly-made commanding officers, who are in charge of organizations composed of recruits, and are attempting to apply the many details which are scattered throughout army publications. It is hoped that this paper, incomplete and defective as it is, will be of some assistance to those who have had but little experience as organization commanders.

An Evacuation Hospital has been selected as the organization for consideration, but this outline will apply also to other sanitary organizations with certain modifications.

The clerical work necessary to comply with the requirements of the War Department for administrative units in time of peace, would undoubtedly be greatly diminished in the theatre of operations during an active campaign, but every effort should be made to record and preserve as much data as possible.

The administration of a hospital is accomplished through Hospital Orders, Special Orders, Memoranda, Verbal Orders and Instructions. The following orders and memoranda either contain instructions required to be published by the War Department, or are used as a means of accomplishing certain results desired by the commanding officer.

EVACUATION HOSPITAL No. 1,

Galveston, Texas. .....(*date*).....

Hospital Order No. 1.

1. The undersigned hereby assumes command in compliance with Par. 6, S. O. 100, W. D., May ..., 1914.

Signed) .....

Major, Medical Corps,
Commanding.

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EVACUATION HOSPITAL No. 1,
Galveston, Texas.

HOSPITAL ORDER ..... (*date*) .....
No. 2.

The following officers having reported for duty are assigned as follows:

1. Captain ..... (*name*) ....., Medical Corps, Commanding Hospital Company.

2. Captain ..... (*name*) ....., Medical Corps, Adjutant, Recruiting Officer, Summary Court Officer and Surgeon of the Command.

3. Captain ..... (*name*) ....., Medical Corps, Acting Quartermaster, Ordnance Officer, Medical Property Officer.

BY ORDER OF MAJOR .....
..... (*name*) .....
Captain, Medical Corps,
Adjutant.

EVACUATION HOSPITAL No. 1,
Galveston, Texas.

HOSPITAL ORDER ..... (*date*) .....
No. 3.

1. The non-commissioned officers named below, having reported at this hospital for duty, are assigned as follows:

Sergeant First Class ..... (*name*) ....., Acting Q. M. Sergeant.

Sergeant First Class ..... (*name*) ....., in charge of Record Office.

Sergeant First Class ..... (*name*) ....., Acting First Sergeant of Detachment.

2. Sergeant ..... (*name*) ....., Hospital Corps, is hereby detailed as Mess Sergeant to take effect this date.

3. Private ..... (*name*) ....., Hospital Corps, is hereby appointed Acting Cook to take effect this date.

BY ORDER OF MAJOR .....
..... (*name*) .....
Captain, Medical Corps,
Adjutant.

EVACUATION HOSPITAL No. 1,
Galveston, Texas.

HOSPITAL ORDER ..... (*date*) .....
No. 4.

1. The following list of calls are published to take effect this date:

Reveille, First Call ..... 5:30 A. M.
Assembly ..... 5:40 "
Setting up exercises, 5 minutes.
Mess Call (Breakfast) ..... 6:00 "

The above calls will be sounded one hour later on Sundays and Holidays.

Drill, First Call ..... 6:50 A. M.
Assembly ..... 7:00 "
Recall ..... 8:30 "
School Call ..... 9:00 "

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Recall	10:00	"
School Call	10:15	"
Recall	11:15	"
Mess Call (Dinner)	12:00	Noon.
Sick Call	1:00	P. M.
Fatigue Call	1:00	"
Recall from Fatigue	4:00	"
Retreat, First Call	5:15	"
Assembly	5:20	"
Mess Call (Supper)	5:30	"
Tattoo	9:00	"
Call to Quarters	10:45	"
Taps	11:00	"

SATURDAYS:

Inspection, First Call	8:20	A. M.
Assembly	8:30	"

Articles of War will be read immediately after inspection.

BY ORDER OF MAJOR .....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

EVACUATION HOSPITAL No. 1,
Galveston, Texas.

HOSPITAL ORDER .....(*date*).....
No. 5.

1. In compliance with the provisions of Par. 3, G. O. 71, W. D., 1913, all men of this Command who expose themselves to infection of venereal diseases will report immediately on returning to camp at the prophylactic tent and receive treatment for the prevention of such diseases. The delay in returning to camp after exposure to the above-mentioned infections will not be greater than six hours, and less than that time if possible. Any soldier who fails to comply with this order will be tried by court-martial for neglect of duty.

BY ORDER OF MAJOR .....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

EVACUATION HOSPITAL No. 1,
Galveston, Texas.

HOSPITAL ORDER .....(*date*).....
No. 6.

The following Sanitary Regulations are published for the guidance of all members of this Command, and they will be strictly observed:

1. Men shall bathe at least twice a week. On account of the undercurrents which vary with the tide, great care should be exercised by men bathing in the sea, as a number of soldiers have been drowned on this beach, the result of venturing out in deep water. Men should not go in

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swimming alone, but in parties consisting of several persons and should remain close enough together to render assistance should the necessity arise. Those who cannot swim should be careful to avoid reaching a depth much above the waist line.

2. Hands shall be washed after urinating, or defecating, and before meals.

3. Teeth shall be cleansed with brush at least once a day.

4. Due care shall be exercised to keep the closets and baths in a clean condition at all times. Seat tops shall be closed immediately after using. Paper shall not be scattered around the closets, and old clothing shall not be left in or around the bathhouses.

5. No one shall urinate or defecate upon the ground or in unoccupied tents or shacks.

6. Urine cans for use of the Command shall be placed in camp streets at retreat, and removed at reveille.

7. The camp shall be kept well policed at all times, and in order to accomplish this the men shall not throw paper, food or trash of any form on the ground to be collected by the police party, but shall deposit all waste in receptacles furnished for the purpose.

8. As flies will collect around food and greasy places, care should be continually exercised to keep all food and garbage receptacles clean and protected from flies by suitably fitting covers.

9. Garbage shall be cremated daily, and the areas around garbage cans and crematory kept free from particles of food and grease.

10. The inside of tents shall be aired daily by rolling up the tent sides, and once a week all bedding shall be hung outside of tents to be aired in the sun for two hours.

By Order of Major .....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

EVACUATION HOSPITAL No. 1,
Galveston, Texas.

Hospital Order
No. 7.

.....(*date*).....

The following information pertaining to the administration of this Hospital is published as a guide for all concerned:

THE ADJUTANT.

1. The Adjutant shall have charge of the Record Office. He shall also perform the duties of Recruiting Officer, Summary Court and Surgeon of the Command.

All papers and records that apply to patients, recruiting and those pertaining to the general administration of the Hospital shall be prepared in the Record Office.

The Non-Commissioned Officer in charge of records shall, under the direction of the Adjutant, assign the different clerks in the record office to their particular duties.

A Ward Assignment Record for patients shall be carefully kept, showing number and location of patients in Hospital, and number and location

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of empty beds. The information for this record is derived from, first, list of patients admitted to receiving ward; second, reports of transfer, deaths, desertion and escape, submitted from treatment wards.

On receipt of notification of transfer, change of diagnosis, death, etc., from a ward, the necessary data shall be noted on the record card.

On the receipt of a report of death notification shall be immediately sent to the Quartermaster.

THE QUARTERMASTER.

2. The Quartermaster shall command the Detachment of Quartermaster Corps and perform such duties as pertain to the Quartermaster Corps. He shall be accountable for, and have charge of all property and supplies pertaining to the hospital. Should the hospital become fixed for any length of time, officers shall submit memorandum receipts for property under their direct control.

The Quartermaster shall have charge of the shipment and transportation of property. He shall see that all boxes, packages and bundles are plainly numbered, and agree with the numbers on the Packers' List. The hospital division to which they belong should also be shown in order that they may be separated for immediate use.

The Quartermaster shall take the necessary steps to replenish supplies that have been expended, lost or destroyed, and always keep himself informed as to the amount on hand, with a view of making requisitions in time to avoid any shortage.

Unserviceable, non-expendable property of no salable value shall be submitted for the action of a surveying officer or disposed of under the provisions of Bulletin No. 3, War Department, 1914, as frequently as possible in order to avoid a large accumulation.

Whenever loss or destruction of or damage to public property requiring the action of a surveying officer occurs, such action shall be requested by the responsible officer as soon as practicable, and in every case within thirty days after the discovery of the loss, destruction or damage, unless exceptional circumstances which will be explained by the officer's certificates, prevent such action within that period.

Issues shall be made from the storeroom daily between 9:00 and 11:00 a. m., and at such other time as required in emergency.

On the delivery of effects and public property in possession of patients, a receipt shall be signed in duplicate. One copy shall be sent to the patient; the other shall be retained by the Quartermaster for his record.

Great care should be taken to insure the safety of money and other valuables belonging to patients, as the usual facilities for the security of property are not available in the field.

Money and other valuables shall be enclosed in an envelope or other covering, marked with the patient's name, and placed in a strong lock box. The Quartermaster shall keep the key. He shall also use such other methods as are necessary to insure the safety of the above-mentioned articles.

Effects, other than money and valuables, and public property shall be secured together and tagged for identification. They shall be kept in a property tent and the necessary steps taken for their security.

When a patient leaves the hospital his property shall be returned to him and the receipt in his possession collected and destroyed.

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In case of death the patient's effects shall be disposed of in accordance with Army Regulations.

Public property in the possession of a patient in the hospital, who, on account of the nature of his disease or injury, will evidently be on sick report for a long time, or who dies or deserts, shall be either taken up by the Quartermaster or transferred to a representative of the department to which the property belongs.

The Commanding Officer of the patient shall be immediately notified by mail as to the disposition made of the above-mentioned property.

Personal property, such as valuable letters and identification tags, left at the hospital by the enemy who were patients, shall after death be sent to the "Inquiry Office for Prisoners of War."

THE COMPANY COMMANDER.

3. The Company Commander shall have charge of the Hospital Company and under his direction shall be prepared all papers and records pertaining thereto.

He shall make the required details of enlisted men, assigning them to their particular work. He shall supervise the drill and instruction of his command. He shall, under the direction of the Commanding Officer, establish and break hospital, and for this purpose permanent details of squads shall be made and trained for the particular work required of them on such occasions. One or more officers shall be assigned for duty with the company, under the direction of the Company Commander, as occasion requires.

THE CHIEF OF SURGICAL AND MEDICAL SERVICE.

4. The Chief of Surgical and Medical Services shall be in general charge of the wards and all operative work. He shall see that all orders are carried out by the ward personnel. He shall be consulted regarding serious cases. He shall see that each patient is returned to duty as soon as his condition will permit. He shall decide on the disposition of every case whether to be returned to duty or sent to the base hospital. He shall designate such patients, as cannot be moved, to remain with the hospital section to be left behind when the location of the hospital is changed. He shall arrange for the prompt pitching of operating tents when the necessity for such is evident. He shall designate for operation such cases as require immediately attention. He shall superintend the selection and distribution of operating equipment as soon as the hospital is established. He shall make timely request for supplies, and train his assistants for such duty as will be required of them.

WARD SURGEONS.

5. Ward Surgeons shall be in charge of treatment wards. They shall be entrusted with the care and treatment of patients.

When a patient is admitted to a ward for treatment the wardmaster shall complete all spaces on his register card to and including No. 14, omitting space No. 10.

If the man was accompanied by a transfer card, a register card shall be started containing such data as contemplated for register cards mentioned in the preceding paragraphs. The register cards and transfer cards partially filled out shall be sent to the record office with the next morning report.

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Patients shall not be transferred from one ward to another without proper authority. After authority for transfer to another ward is obtained a memorandum shall be sent to the record office giving name, rank, organization, date of transfer and number of ward to which transfer is made. The transfer shall be noted in the record office on the blank space of register card. The notification may be sent to the record office on a register card, the notations being made with pencil or red ink.

When the diagnosis of a case is changed, or complications or sequelæ develop, a report shall be made to the record office upon a register card marked in pencil or red ink, "Change of Diagnosis." A change of diagnosis shall be indicated in space 15, giving the date of change.

Immediate reports shall be made of deaths and unauthorized absences of patients and attendants.

When a patient is admitted to a ward the wardmaster shall immediately make a duplicate list of his effects, and all public property in his possession, Form 78, in the presence of the patient, who shall, if practicable, certify that the list is correct. (If the patient is unconscious, insane or otherwise unable to look after his own interests, a list shall be made out in the presence of another enlisted man, who with the wardmaster, shall certify that the list is correct.) The articles listed are then tied up in a bundle and delivered to the Property Officer, who will sign both copies. The Property Officer shall retain the original and send the duplicate to the patient. Should the patient be unconscious, etc., the duplicate shall be sent to the Adjutant.

Ward Surgeons shall personally see that patients who are prisoners of war, in their respective wards, are treated humanely and with respect, and also taken care of without distinction of nationality. The ward surgeons shall also take the necessary steps to prevent the escape of patients who are prisoners of war.

The following forms or notices shall be sent daily to the record office at a specified time, viz.:

1. Form 72—Morning Ward Reports.
2. Form 73—Ward Diet Card.
3. Form 52—Transfer Cards received from other hospitals.
4. Form 52—Register Cards.
5. Form 52—Changes of Diagnosis.
6. Form 52—Transfer to other wards.
7. Forms 55, 55a, 55b and 55c—Clinical records of all cases completed or disposed of.
8. Diagnosis tags on patients. Before they are sent to the record office these shall be completed by noting on them the date and fact of admission to hospital.
9. Identification tags of the enemy who die in hospital shall be left on the body for disposal by the Quartermaster.
10. Notification of admissions and losses of prisoners of war shall be made by name. This notification shall also be sent to the Officer of the Day to be verified with the guard report.

THE MESS OFFICER.

6. The Mess Officer shall be in charge of hospital messes, mess funds and kitchens, and he shall supervise the preparation of all papers pertaining thereto.

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THE EXCHANGE OFFICER.

7. The Exchange Officer shall run the Exchange in accordance with rules and regulations prescribed for Post Exchanges.

THE OFFICER OF THE DAY.

8. The Officer of the Day shall have charge of the receiving ward. His tour of duty shall be twenty-four hours beginning at 9:00 a. m. and ending at 9:00 a. m. the following day. He shall not leave the hospital during his tour of duty without permission from the Commanding Officer. He shall inspect the hospital once between midnight and daylight. At the above inspection he shall visit all wards. He shall check all prisoners of war who are sick in hospital. He shall receive the report of Non-Commissioned Officers who make check of members of the Command and patients in the hospital. He shall inspect at least one meal during his tour of duty. Immediately after guard mounting the old and new Officers of the Day shall report to the Commanding Officer, or to his representative in his absence. When the guard is not furnished by other commands the Officer of the Day shall be in charge of the guard which shall be detailed by the Company Commander.

The Receiving Ward shall be under the direction of the Officer of the Day. He shall personally see all patients on admission, and make the proper disposition of them by assignment to wards. Atttention should be given first to those who need immediate treatment.

At the Receiving Ward there shall be on duty one Non-Commissioned Officer and as many Privates First Class and Privates as are necessary to accomplish the work with the least possible delay.

All patients shall be admitted to the hospital through the Receiving Ward.

A record of admission shall be kept, with the necessary index, showing names, rank, organization, date, name and address of nearest relative and ward to which assignment is made. Immediately on admission an identification cardboard tag shall be attached to all patients who are without identification tags.

The number of the ward to which a patient is sent shall be noted upon the blank space on the back of his transfer card. In cases admitted without transfer cards, register cards shall be started, filling in the first five spaces.

The number of a ward to which a patient is assigned shall also be entered on the back of his register card, as described for transfer cards.

The transfer and register cards, also effects, are sent with patients to the wards designated for treatment.

Every day at a designated time a list of patients admitted during the past twenty-four hours shall be sent to the record office. This list shall also show the ward to which each patient has been assigned for treatment, his rank, organization and name and address of nearest relative.

The Non-Commissioned Officer will obtain daily from the record office information showing the number of vacant beds in each ward.

By Order of Major .....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

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To avoid further repetition the headings, except the numbers and the endings will be omitted from the following orders:

HOSPITAL ORDER
No. 8.

1. The following officers having reported for duty are assigned as follows:

Chief of Medical and Surgical Services—
Capt. .....(*name*)....., M. C.

Operating Surgeon—
Capt. .....(*name*)....., M. C.

Assistant Operating Surgeon—
First Lieut. .....(*name*)....., M. C.

Ward Surgeons—
First Lieut. .....(*name*)....., M. C.
First Lieut. .....(*name*)....., M. C.
First Lieut. .....(*name*)....., M. C.
First Lieut. .....(*name*)....., M. C.
First Lieut. .....(*name*)....., M. C.
First Lieut. .....(*name*)....., M. C.

Company Officer—
First Lieut. .....(*name*)....., M. C.

2. Ward Surgeons and the junior company officer shall at all times be available for urgent operative work.

3. When conditions permit ward surgeons shall be available for company duty.

HOSPITAL ORDER
No. 9.

The following officers in addition to their other duties are detailed as follows:

First Lieut. .....(*name*)....., M. C., Mess Officer.
First Lieut, ...(*name*)....., M. C., Exchange Officer.

HOSPITAL ORDER
No. 10.

1. The uniform for camp and all formations shall be as follows:

Service Hat.
O. D. Shirt.
O. D. Breeches.
Web Belt (issue).
Canvas Leggings.
Tan Shoes (issue) for inspections.

2. Men leaving camp may wear the service coat and O. D. cap. The cap shall not be used unless the coat is being worn.

3. The service hat shall always be worn in the shape authorized. It must not be creased from front to rear.

4. The identification tag shall always be worn.

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HOSPITAL ORDER
No. 11.

1. The regular monthly inspection and muster of troops of this command shall take place .....(*date*)....., 19....

2. Formation: Hospital Company, Evacuation Hospital No. ..., will form on the parade. The Detachment of Quartermaster Corps with transportation will form in the rear of the Hospital Company:

First Call .....8:50 A. M.
Assembly .....9:00 "

3. Uniform shall be as prescribed in Hospital Order No. 10, ... (*date*)....., with full field equipment.

4. All enlisted men shall attend except the guard, the sick, one tent orderly and one cook.

HOSPITAL ORDER
No. 12.

1. The Inspector General shall inspect this Command at 9:00 a. m. on Thursday, ...(*date*)....., 19...

2. All members of the Command, including those detailed on special duties in the Hospital, shall attend, with the exception of one cook and two teamsters. The latter shall be present with their transportation.

3. Uniform: The prescribed uniform for inspections (Hospital Order No. 10), and full field equipment shall be worn.

4. The usual drills and instruction shall be suspended until after inspection.

HOSPITAL ORDER
No. 13.

1. The following schedule of drills and indoor instruction for the Company will begin on Monday, ...(*date*)....., 19...

2. The Company shall be divided into two sections for indoor instruction, and the afternoon detachment drills. Each section shall form in line and be marched to the class room by the non-commissioned officer in charge of that section. Rolls shall be called and absentees reported.

The first section shall be in charge of Sergeant .....(*name*).....
The second section shall be in charge of Sergeant .....(*name*).....

DRILLS AND INDOOR INSTRUCTIONS.

A. M.	
7:00- 8:30.	Company drill.
9:00-10:00.	First Aid, Sections 1 and 2. Instructor, Captain ..... (*name*).....
*10:15-11:15.	Anatomy and Physiology. Instructor, Sergeant First Class .....(*name*).....
*10:15-11:15.	Nursing, Bandaging and Medical Department Appliances. Instructor, Sergeant .....(*name*).....

*Sections take both courses on alternate days.

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P. M.

2:00-3:00. Personal Hygiene, Field Work and Duties of a Soldier. Instructor, Sergeant .....(*name*).....*

2:00-3:00. Materia Medica and Pharmacy. Instructor, Sergeant ..... (*name*).....*

3:00-4:00. Section Drills.

*Sections will take both courses on alternate days.

DRILLS.

	By Company. 7:00-8:30 A. M.	By Section. 3:00-4:00 P. M.
Monday	Shelter Tent.	Litter Drill.
Tuesday	Company.	Bearer Work.
Wednesday	Hospital Tent Pitching.	No Drills or Instruction.
Thursday	Company.	Litter Drill.
Friday	To be designated.	oaded Litter, etc.

HOSPITAL ORDER
No. 14.

1. Tomorrow, July 4th, being a legal holiday, all duties except the necessary police, fatigue and treatment of patients in hospital will be suspended.

HOSPITAL ORDER
No. 15.

A Council of Administration is hereby appointed and will convene at the call of the President for the purpose of transacting such business as may be properly brought before it.

Detail for the Council:

Capt. .....(*name*)....., M. C.
Lieut. .....(*name*)....., M. C.
Lieut. .....(*name*)....., M. C.

SPECIAL ORDER
No. 1.

1. In compliance with Indorsement Adjutant General's Office, June 4, 1914, the following transfers are hereby made: Sergeant First Class .....(*name*)....., Hospital Corps, on duty with Ambulance Company No. .., ...(*place*)....., ...(*state*)....., is transferred to Evacuation Hospital No. .., ...(*place*)....., ...(*state*)....., and will report to the Commanding Officer of that Hospital for duty.

2. Sergeant First Class .....(*name*)....., Hospital Corps, on duty with Evacuation Hospital No. .., ...(*plame*)....., ...(state) ....., is transferred to Ambulance Company No. .., ...(*place*)....., ...(*state*)....., and will report to the commanding Officer of that Company for duty.

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SPECIAL ORDER
No. 2.

1. Sergeant .....(*name*)..... and Private First Class .....(*name*) ....., Hospital Corps, will proceed with the least practicable delay to Houston, Texas, and secure Private First Class .....(*name*)....., Hospital Corps, Evacuation Hospital No. .., now detained in the hands of Civil Authorities.

2. Sergeant .....(*name*)..... and Private First Class .....(*name*) ..... will return to their proper station with Private First Class ..... (*name*)..... and deliver him to the Commanding Officer on arrival.

3. The Quartermaster Corps will furnish the necessary transportation. The travel directed is necessary in the public service.

SPECIAL ORDER
No. 3.

1. In compliance with Par. 27, S. O. 209, W. D., Sept. .., 19..., Sergeant First Class .....(*name*)....., Hospital Corps, will proceed to .....(*place*)....., ...(*state*)....., reporting upon arrival to Commanding Officer for duty.

2. Per Instructions of the Commanding Officer, Port of Embarkation, ...(*place*)....., ...(*state*)....., the Quartermaster Corps, Port of Embarkation, ...(*place*)....., ...(*state*)....., will furnish transportation and commutation of rations in advance, at the prescribed rate, for four (4) days, it being impracticable for this soldier to utilize rations en route.

3. The travel directed is necessary in the public service.

MEMORANDUM
No. 1.

Men going to town must have on proper uniform and present a neat appearance. All buttons on uniform shall be kept buttoned. The collar shall not be worn open or sleeves rolled up. The men shall be instructed to conduct themselves in a soldierly manner, and to salute all officers promptly and properly. The men should at all times try to reflect credit on the uniform that they wear, the Hospital Corps in general, and upon this organization.

MEMORANDUM
No. 2.

1. A venereal prophylactic tent has been established east of the record office. All men who expose themselves to venereal infection will take prophylactic treatment under the direction of an attendant on duty at the prophylactic tent.

2. The Non-Commissioned Officer in Charge of Quarters will have general supervision of the prophylactic tent, and shall see that all men who apply for treatment are assisted in finding the attendant.

3. Men shall apply to the Non-Commissioned Officer in Charge of Quarters for instructions if the prophylactic attendant cannot be found.

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4. Two men shall be detailed as prophylactic attendants, one of whom shall be on duty from reveille to retreat, and the other from retreat to reveille.

5. Those attendants shall administer to all men applying for treatment as prescribed by the medical officer in charge, and will make the necessary records required by the Medical Department.

INSTRUCTIONS FOR PROPHYLACTIC ATTENDANTS.

MEMORANDUM
No. 3.

1. The penis shall be thoroughly washed with soap and water, especially the glans penis and under the foreskin.

2. The glans penis and foreskin shall then be rubbed thoroughly with calomel ointment, using a quantity about equal to the size of the end of a thumb. A 2 per cent Protargol solution in 20 per cent glycerin shall be injected into the urethra and retained for five minutes by pressing the end of the penis so as to obstruct the opening into the urethra.

3. A paper towel or piece of toilet paper shall then be wrapped around the penis to prevent soiling the clothes, and also with the view of retaining the ointment on the penis a longer time for its medicinal action. On the completion of every treatment the attendant shall wash, and immediately afterward disinfect his hands in a 1 to 2,000 bichloride of mercury solution. The syringes shall be kept in a 5 per cent solution of carbolic acid, or a 1 to 1,000 solution of bichloride of mercury.

MEMORANDUM
No. 4.

1. When enlisted men report for duty with this hospital the following information shall be obtained by the Detachment Commander and report made to this office:

1. Date of smallpox vaccination.
2. Date of last dose of typhoid prophylaxis.
3. List of personal equipment, M. D., Q. M. and Ordnance.
4. Articles of equipment lost en route.
5. Articles of clothing and equipment needed.
6. Special qualifications, if any.

2. This information is to be obtained from the man's own statement, and actual check of property by a Non-Commissioned Officer, and not from the D. L. or property papers.

(*To be continued in April.*)

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Reprints and Translations

Arterior-Venous Aneurysm of the Femoral Vessels Following Bullet Wound Through the Left Thigh*

By W. Morley Willis, F. R. C. S., Eng., Surgeon to the General Hospital, Nottingham.

THIS case is of current interest as it occurred in the present war, and of surgical interest on account of the comparative rarity of the condition.

The patient was a private in the Black Watch, and he was wounded at Ypres on October 29, 1914, by a rifle bullet which passed through the upper third of his left thigh, from before backward. He was treated for two days at a clearing station, and was then sent into hospital at Boulogne, where he remained for three weeks. He says that on the third day after his admission to hospital at Boulogne his wounds were practically healed and he was allowed to get up. When he did so he found that on walking about he had a tingling pain in his left foot, and on the second day on which he was up he complained of this to the surgeon who examined him, and found that there was a thrill to be felt in the region of the anterior wound. He was put to bed and he remained there until he was sent to England. He came straight through to us from Southampton and reached the Nottingham General Hospital on November 22, 1914.

On admission the patient had a pulsating swelling, of about the size of a pigeon's egg, about 4 inches below Poupart's ligament, in the line of the femoral vessels. On the upper and inner portion of the swelling was the wound of entrance—healed. The swelling was expansile, and there was a well-marked bruit to be heard on auscultation. A very marked thrill was to be felt, especially in the line of the vessels proximal to the swelling. Pressure on the femoral artery caused the pulsation in the swelling to cease. These foregoing physical signs left no doubt

*Reprinted from *The Lancet*, January 9, 1915.

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that a wound of both the artery and the vein had been inflicted, and from the situation it was reasonably probable that the wound in the artery was below the origin of the profunda femoris. The patient was kept in bed, and it was observed that the swelling was increasing in size.

Operation was performed on December 1st. The steps of the operation were as follows: A long incision in the line of the femoral vessels was made from Poupart's ligament for about 8 inches downwards, and the femoral artery and vein were exposed and demonstrated above the aneurysm; similarly, the artery and vein were exposed below the aneurysm. Then around each vessel separately, both above and below the aneurysm, was placed a temporary ligature consisting of small-sized rubber tubing. In other words, a tourniquet was applied directly to the vessels in the four situations. This secured that the further steps of the operation on the injured vessels were quite bloodless. The femoral vessels where the bullet had traversed them were firmly adherent to each other, and there was scar tissue in the neighborhoood. They were carefully dissected from each other, and it was found that the artery had a wound in front and behind, and that the vein had a wound on its outer side only. The situation and relations of the vessels explain this, as at the position where the wound occurred the vein is beginning to pass behind the artery. Consequently a wound through the artery just caught the outer border of the vein. The profunda femoris artery was demonstrated, arising about 1¼ inches above the wound in the femoral artery. The femoral artery was then ligatured above and below the wound in it, and the wounded portion was cut out. The wound in the vein was a longitudinal slit about ¼-inch in length. This was repaired by suture with fine silk and intestinal needle, and the continuity of the blood stream restored. The temporary ligatures of rubber tubing were then removed from the four points where they had been applied, and the wound was found to be dry, no hæmorrhage taking place, from either vein or artery. The deep fascia was sutured with catgut and the skin with silkworm gut.

The operation was performed under spinal anæsthesia, which was quite perfect. The patient made an entirely uneventful recovery, getting up at the expiration of three weeks.

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Editorial

SHALL WE HOLD A REUNION IN SAN FRANCISCO?

The Bureau of Conventions and Societies of the Panama-Pacific International Exposition, which is ambitious to secure all the medical meetings possible during the exposition period devoted to such conventions, has suggested that a special session of the Association of Military Surgeons of the United States be called during the week of the meeting of the American Medical Association, either on Monday, June 21st, or Saturday, June 26. While it is manifestly impossible to hold the regular or stated meeting of the Association in San Francisco this year, it is probable that many of our members will be in San Francisco during the Medical Period which extends from June 14 to July 3. If arrangements can be made to hold an unofficial gathering or reunion of members of the Association at this time, the Exposition authorities will gladly furnish the necessary quarters for the meeting. Such a gathering would be very pleasant and would enable western members, in southern parlance, to "meet up with" members from other parts of the country who go to the Coast ostensibly for the scientific meetings, but in reality to see the Exposition. The Secretary of the Association will be glad to hear from members who favor this reunion and will institute such measures as may be necessary for the meeting, provided a sufficient number respond.

THE DIVISION OF MILITIA AFFAIRS AND THE ORGANIZED MILITIA

The Division of Militia Affairs ever since its organization has been working cautiously and with painstaking care to increase the efficiency of the Organized Militia. The representative of the Army Medical Corps with the Division of Militia Affairs has labored untiringly toward the codification and reduction to system of the regulations for the goverance of the Sanitary troops.

Two excellent and striking examples of the commendable efforts of the Division have recently been published. The first is

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Circular No. 18, which prescribes the form of organization for the Medical Departments of the Organized Militia in the several States, Territory and the District of Columbia. The necessity for this circular was critical, for notwithstanding all regulations and in spite of the earnest efforts of many of the chief surgeons of the so-called National Guard, there has never been any uniform organization for the medical departments of states, and with few exceptions each state has been a law unto itself. As a result of this lack of uniformity marked variations have existed in the requirements for admission to the service, for promotion and for discharge. In some states, notably in Illinois, Ohio and Pennsylvania, the physical and professional tests for candidate medical officers have been comparatively severe; in many states, however, the tests, both physical and professional, have been superficial and in some states have been omitted entirely. In the latter case appointments to the Medical Corps have usually been due to favoritism rather than to merit.

The second example is the *Memorandum for Medical Officers of the Organized Militia* which was issued by the Division of Militia Affairs, January 8, 1915. This circular sets forth with clarity and precision the course of instruction for medical officers which, after careful deliberation and extended consultation with medical officers of the guard, has been decided on as best suited to promote efficiency. This proposed course of instruction supplants the partial and lamentably fragmentary teaching which has existed in many of the departments of the Organized Militia not because of lack of desire to do well but because of the absence of a well-thought-out plan on which as a basis might be built an enduring and efficient structure.

This instruction circular is being sent to all officers of the Sanitary Troops who desire information regarding medico-military matters, and an officer who does not desire information regarding the work of his department neglects a most important means of increasing his efficiency, deserves neither recognition nor promotion and is unfit to be honored by a commission.

As the reason for existence of the medical departments of the various states which make up the Organized Militia is, outside of their purely local duties as police or constabulary, co-operation with the Medical Department of the Army in time of need, all should be organized and instructed alike. The promulgation of *Circular No. 18 and the Memorandum of Instruction* and the conscientious carrying out of the work therein set forth makes real an ideal for which the Organized Militia has long been blindly

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striving, namely, a uniform working organization and plan of instruction for its various component sanitary units.

The Division of Militia Affairs merits unstinted praise from the National Guard. It has worked with intelligence and foresight; so far as possible it has avoided radical changes and has minimized the "Red Tape" which is so appalling to the young officer. The Division of Militia Affairs has given the needed impetus; the Organized Militia must now make good. Watch it grow!

THE JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE

In the midst of war's alarms and into the pit of the theater there has sprung fully armed a new aspirant for medico-military favor. The Royal Navy Medical Corps following the example set by the Royal Army Medical Corps has commenced the publication of a journal devoted especially to the needs of the Naval Service. The first issue, that for January, 1915, compares well with the *Journal of the Royal Army Medical Corps* or with the *United States Naval Medical Bulletin*. The editors, Fleet Surgeons R. C. Munday and W. L. Martin, R. N., have done their work well. The contributions are of especial interest and most of them have to do with the medico-naval conditions now existing in Europe. The editors apologize and ask their readers to make allowances for deficiencies, but the deficiencies are not apparent in this first issue of the *Journal* and no apologies are necessary. The articles abstracted in the department of Current Literature of this issue of THE MILITARY SURGEON indicate the high grade of merit which the editors have adopted as their standard.

THE MEDICAL PICKWICK

Medical humor has heretofore found expression in the stories of more or less questionable character told at banquets of medical societies, in the more or less antiquated squibs which are sandwiched between reading notices of proprietary articles in certain medical journals, in the "Clippings from Lay Exchanges" which appear from time to time in the advertising pages of the *Journal of the American Medical Association* and in the annual issue of *The Medical Gewalt* in the United States and of a satirical and

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humorous number of one of the most solemn and sedate medical weeklies of Germany. With the present new year a new periodical has appeared on the literary horizon. It is called *The Medical Pickwick*. It proposes to emphasize the humorous and unique side of medical life. This number is scintillating with satire and wit, but we question whether the supply of Aristophanean jokes and post-Aristophanean quips will be sufficient to allow the continued maintenance of the present admirable standard. If, however, future issues measure up to the level of this first issue, *The Medical Pickwick* will undoubtedly raise the Dickens.

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Current Literature

FRANCE.

Bulletin de l'Académie de Medicine.

January 12, 1915.

1 Treatment of Frost Bites by the Bio-kinetic Method. L. Jacquet.
2 Note on Tetanus in Wounds of War. Sieur.
3 A Simple Method of Extracting Foreign Bodies in Wounds of War. P. La Croix.

Office Internationale d' Hygiéne Publique.

October, 1914.

4 The Last Epidemic of Cholera in Greece (1913) and Anticholera Vaccination.
5 *The Dissemination and the Prevention of Yellow Fever. J. H. White, United States Public Health Service.
6 The Sleeping Sickness. G. Bouffard.
7 *The Prevention of Typhoid Fever by Bacterial Vaccination. Frederick F. Russell, M. C., U. S. A.

5. **The Dissemination and the Prevention of Yellow Fever, by J. H. White, of the United States Public Health Service,* is a translation of the paper prepared by Dr. White for the Fifteenth International Congress of Hygiene and Demography, held in Washington, D. C., in September, 1912.

7. **The Prevention of Typhoid Fever by Bacterial Vaccination, by Maj. Frederick F. Russell, of the Medical Corps of the United States Army,* is a translation of a paper presented by Maj. Russell before the Fifteenth International Congress of Hygiene and Demography, held in Washington, D. C., in September, 1912.

November, 1914.

8 Antityphoid Vaccination. Prof. Santohquido.
9 Tuberculosis and Work. Henri Pottevin

December, 1914.

10 Antityphoid Vaccination in War. Vincent.
11 Antityphoid Vaccination in Belgium. O. Velghe.

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GERMANY

Deutsche Militärärztliche Zeitschrift

August 5, 1914.

12 Litter with Springs for Farm Wagons and Automobiles. v. Hase.
13 *German Boy Scouts and Medical Officers. Brunzlow.
14 Roentgen Examinations in Garrison Hospitals. Otto Strausz.

13. **German Boy Scouts and Medical Officers, by Brunzlow,* is an earnest and virile article in which the great value of proper instruction by medical officers as a character and health builder is emphasized. The management of boys who have gone wrong sexually, those who have minor moral deficiencies, and others who are weak because ignorant of the simplest biologic principles, is discussed in a frank and inspiring manner. The physician can do much by showing the boys the dangers of immoral practices of all kinds and by painting to them the need of preserving their health and integrity to have the assurance of a future offspring which will be useful to themselves and the community. In some cases special personal talks in a fatherly manner behind closed doors will be needed, and the nature of such talks must be phrased to overcome rebellion and to acquire the absolute confidence of the impressionable boys.

AUSTRIA

Der Militärarzt

June 27, 1914.

15 *Impressions and Sanitary Experience at Adrianople from the Standpoint of the Internist. Karl von Müllern.
16 The Military Medico-Legal Adviser. Rudolf Blumel.
17 Some Remarks on the Anthropologic Material of the "Novara-Expedition." Sigmund Stiassny.

15. **Impressions and Sanitary Experience at Adrianople from the Standpoint of the Internist, by von Müllern,* is the first half of an interesting account of the purely medical aspect of the famous campaign. An extensive abstract will appear under "Reprints and Translations" in the next issue.

ENGLAND

Journal of the Royal Army Medical Corps

November, 1914.

18 The Treatment of Acute Emphysematous Gangrene. C. B. Lawson and Lieut. Beckwith Whitehouse.
19 Investigations on Kala Azar in the Sudan. R. G. Archibald.

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20 Male and Female. R. H. Firth.
21 Intravenous Injection of Neo-Salvarsan in Concentrated Solution. T. W. Gibbard.
22 A Report on Gas Gangrene. Anthony A. Bowlby and S. Rowland.
23 *The Transport of Wounded in War. S. H. Fairrie.

23. **The Transport of Wounded in War, by S. H. Fairrie,* is found in correspondence, and is a reply to a paper on the same topic by Major Hall. Major Fairrie pertinently points out that when troops are operating in a friendly country where roads are numerous and good, where transport can be hired, where railways exist in working order with plenty of rolling stock, the evacuation of sick and wounded is quite a different matter from what it is where roads are few and bad, transport scarce, railway lines few and interrupted, and rolling stock scarce or destroyed by the enemy. In these latter circumstances the evacuation of wounded cannot be conspicuous for either its care or rapidity. Under such circumstances the chief quality needed will be patience and a genius for improvisation.

There is much in Major Fairrie's "communication," which is really an extended article. Two points particularly stand out. First, what the railway can do. The *railway regulating center,* says Major Fairrie, is the only permanent and fixed part on the military railway system. Railhead itself is not a fixed part and may be changed from day to day, and may be any distance up to forty miles from the divisions. Daily sick and any wounded evacuated in the empty supply vehicles would naturally have to go to the railhead for supplies, and thence to the railway regulating center, and there again be transferred to permanent ambulance trains for distribution among the various general hospitals. To open a clearing hospital at the railway regulating center would be pure waste of a unit needed elsewhere. Here there should be one or more stationary hospitals constituting a sort of glorified rest station. They should provide personnel for medical convoys, for supply railway trains and for improvised ambulance trains; also a series of railhead parties to form railhead rest stations moving as each railhead moves. The clearing hospital is left free to fulfill the rôle of field hospital. The transportation of large numbers of wounded is to be met by supplying detachments of the clearing hospital with transport, or by forming a separate column of evacuation or ambulance column, to connect the field ambulances with the railway. The simplest method would be to form mobile detach-

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ments from the clearing hospital with their own transport using such vehicles as can be locally obtained.

The second point that Major Fairrie brings out is that the view that the clearing hospital is an adjunct and not an essential in any satisfactory scheme for the evacuation of the wounded, is not orthodox, and beginners should be warned against it. The clearing hospital is the pivot upon which all arrangements for evacuation turn. At one time it will be working through its detachments; at another it will be open on the field of victory; at another it will be packing up for a future effort. One thing is certain, namely, that the chief officer of the clearing hospital will be one of the hardest worked individuals in any of the administrative services and upon his activities much will depend.

The Lancet.

January 9, 1915.

24 *Arterio-Venous Aneurysm of the Femoral Vessels Following a Bullet Wound Through the Left Thigh. W. Morley Willis.
25 Third Outbreak of Epidemic Poliomyelitis at West Kirby. George Jubb.

24. **Arterio-Venous Aneurysm of the Femoral Vessels Following a Bullet Wound Through the Left Thigh, by W. Morley Willis,* is a description of a wound and its treatment during the present war. Because of both the current and surgical interest of the case, the article will be found in the Department of Reprints and Translations, page 254.

January 16, 1915.

26 *Frost Bite. A. W. Mayo-Robson.
27 *Note on Some Cases of Gunshot Fracture. J. Jackson Clarke.
28 Pellagra in Antigua.
29 The Effect of Calcium Chloride on Hæmolysis Occurring "In Vivo." W. W. C. Topley.

26. **Frost Bite, by A. W. Mayo-Robson,* is of more than current interest. The writer admits that the English army is losing a large number of men from this cause, and that a large percentage of those sent home will be unable to return and will have to be invalided out of the army and pensioned for life. He further expresses a desire to know if the soldiers of other armies wearing long boots and not wearing puttees suffer equally with the Englishmen. He says that in England experience of cases of frost bite has been so limited that many surgeons of large hospital experience and the greater number of nurses have up to the present time never seen or treated cases of gangrene

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due to exposure to cold. In the treatment as it is impossible to say how much of the damaged tissues will survive, resort should not be had to early amputation. In some of the cases admitted to the Third London Hospital, the feet quite up to the ankle were livid in appearance, cold to the touch and absolutely devoid of sensation three or four days after being frost bitten; yet under treatment complete recovery, or recovery with gangrene limited to only portions of the toes, resulted. Experience has shown that the best treatment at first is friction with snow or cold water in a cold room, the change to a warmer atmosphere being gradually brought about. Friction with turpentine and oil or with spirit and soap liniment is useful in the early stage, and after friction the limbs should be raised on pillows and swathed in cotton wool held in place by loose bandages to avoid all constriction. If blisters form, or discoloration of the toes or other parts shows that gangrene is probable, the whole foot should be sterilized by rubbing with oil of turpentine or with spirit containing 1 in 500 biniodide of mercury, after which sterilized cyanide gauze should be placed between the toes and over the whole foot, which is then enveloped in sterilized cotton wool, Blisters should be opened and carefully dried and dressed with the spirit and biniodide solution. Every effort should be made to keep the parts dry and sterile. If gangrene occurs, there should be no haste to amputate, as the tissues adjoining the line of demarcation become more and more healthy and the line of granulation between dead and living tissues, if kept aseptic, gives rise to little discharge. When finally it is seen what skin flaps are available amputation can be performed in such manner as to allow the flaps to cover the stump. Where the gangrenous process has involved only the superficial layer of the skin, the separation of the necrosed part should be left to nature and later skin grafting may be employed. If as the result of wet dressings the gangrene is moist and the wounds infected, the spirit dressing should still be used and the foot well dusted with equal parts of zinc oxide and boric acid so as to convert the moist into dry necrosis, and thus to avoid general septic complications and the spreading of the gangrene. In first and second stages of frost bite there is often great pain. When the gangrene supervenes the pain may completely subside. The free use of opium and morphia is beneficial, not only in relieving pain and securing sleep, but also in its effect on the circulation. The author's colleague, Capt. F. H. Humphris, has been treating non-gangrenous cases by a daily application of static electricity,

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which seems to hasten convalescence by giving tone to the vessels and restoring normal circulation to the feet.

27. **A Note on Some Cases of Gunshot Fracture, by J. Jackson Clarke,* is, as may be supposed, a history of cases in the present war. It is an account of seven different cases each illustrated by a Roentgen ray photograph.

January 23, 1915.

30 The Black Appendix. William Henry Battle.
31 Some Uses of Static Electricity in Medicinal Surgery. John J. Grace.

January 30, 1915.

32 *The Telephone Attachment in Surgery. James Mackenzie Davidson.
33 *Electrotherapy at a Base Hospital. W. J. Turrell.

32. **The Telephone Attachment in Surgery, by James Mackenzie Davidson,* details the writer's experiments with this instrument since the beginning of the present war. It is of such interest that it will appear in the Department of Reprints and Translations in the April issue of THE MILITARY SURGEON.

33 **Electrotherapy at a Base Hospital, by W. J. Turrell,* is an interesting account of 78 cases of the present war which have been electrically treated at the Radcliffe Infirmary, one of the subsidiary hospitals attached to the Third Southern General Hospital. Of these 78 cases, 31 have been cases of frost bite. Others were treated for pain in the extremities following crushing or partial division of nerve. In such cases it was found that diathermy always afforded marked relief. Sprains of muscles and synovitis of joints yielded readily to the Morton wave static current. The article closes with an account of an interesting case of spinal concussion which speedily yielded under the application of Bergonié's machine for electrically provoked exercises.

February 6, 1915.

34 *Embalmment of Septic Wounds in Cases of Grave Disorganization of Limbs Caused by Rifle and Shrapnel Bullets or Shell Fragments. Louis Mencière.
35 *The Prevention of Frost Bites. Sheridan Delépine.
36 *A Successful Method for the Extermination of Vermin Infesting Troops. S. Monckton Copeman.
37 *A Simple Method of Administering Drugs under War and other Strenuous Conditions. F. W. Tunnicliffe.

34. **Embalmment of Septic Wounds in Cases of Grave Disorganization of Limbs Caused by Rifle and Shrapnel Bullets or*

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Shell Fragments, by Dr. Louis Mencière of Rheims, is interesting from several points of view. First, he says: "There is one surgery of the front and another of the base, and when the time comes for discussion of these matters I would have those who have been operating near the fighting line and those who have been operating in the rear each speak only of what they have seen. Every one would then be the gainer." In discussing surgery at the front Dr. Mencière calls attention to the effect of the seasons. In winter the germ of sepsis is diminished in virulence. An illustration of this is seen in gas gangrene, which was appalling in its frequency and the rapidity of its course in the beginning of the campaign, but has almost entirely disappeared in this winter season. Dr. Mencière says that in twenty years' constant experience of wounds of the limbs of all kinds and from all causes, never has he seen wounds take the course they do in the run-down patients living under the present conditions. Neither aseptic nor antiseptic washings and dressings will suffice. He spent a month at a hospital in the rear where antisepsis was nearly impossible and asepsis was almost exclusively employed in operations and dressings, there being at most a few washings with permanganate. We quote his own words: "The results were deplorable, heartrending, exceeding all my recollections, all that I knew and had seen of the surgery of the limbs." Then he was called to the head of a surgical center in a unit where he could dispose of powerful antiseptics. He was able except for gas gangrene and acute septicemia to preserve as in time of peace smashed limbs with bones broken up in the midst of an intricate and septic wound. Antisepsis then dominates all war surgery, but it cannot, says Dr. Mencière, be applied on the battle field. He adds that later, when the subject is discussed, he shall demand many motor cars and that the wounded be not moved too far into the interior where they would necessarily arrive in a pitiable condition, but be taken only 20 to 25 miles from the firing line to well established units.

For treatment Dr. Mencière says there must be successive lavage of the wound with three antiseptics: sublimate 1 in 1,000, carbolic acid 1 in 40 and peroxide of hydrogen 1 in 3. Why these three antiseptics? Because each of the three is particularly adapted to a particular microbial variety. This is to be followed by the embalmment of the wound with a permanent dressing made of gauze wicks soaked in the solution composed of iodoform 10 grammes, guaiacol 10 grammes, eucalyptol 10 grammes, balsam of Peru 30 grammes, ether 100 grammes.

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For the first three or four days wash with the three antiseptics and then embalm. After three or four days wash only with the peroxide 1 in 3 or 1 in 4. It is a mistake, says Dr. Mencière, not to remove dressings daily. A wound which is closing up necessitates an intense phagocytosis, an irruption of white cells which clog the wound and which form a liquid which is always best to evacuate in order to avoid resorption. For this reason, too, the wounds must be kept draining.

The permanent dressing which he recommends Dr. Mencière says is the best aid to conservative surgery that he has been able to find after trying everything. Though old-fashioned it forms an application which produces unlooked for results. Hospital gangrene, atonic sanious wounds give place to wounds of bright carmine with fleshy, well nourished granulations, wounds no longer septic, but accompanied by extremely rapid healing.

35. **The Prevention of Frost Bites, by Sheridan Delépine,* gives the results of the writer's experiments with oiled silk rendered water proof with heated linseed oil mixed with drier. The experiments are incomplete, but the conclusion is that the water-stocking of Mr. F. B. Behr, or the waterproofed oil silk stocking of the writer, may reasonably be expected to have a protecting influence and their use to be attended with a diminution of the frequency of frost bites.

36. **A Successful Method for the Extermination of Vermin Infesting Troops, by S. Monckton Copeman,* sets forth, first, the difficulties in dealing with the infestation because there was no means of providing hot water for baths, nor did the men have either a second service suit nor a second shirt or change of underclothing. The bath difficulty was finally met by the purchase of large second-hand galvanized iron tanks. These were supported over a central trench on bricks laid in puddled clay. One end of the trench, which extended beyond the tank at either extremity, was fitted with a chimney built up of old bricks, drain pipes and puddled clay, while the other end was used as a stoke hole. On lighting a fire in the trench it was found that even if the tank had no cover the 200 gallons of contained water could be brought to the boiling point in about an hour. Galvanized iron wash tubs in which the men could stand were procured and hot water from the tanks was carried in buckets to the tubs. After bathing and drying themselves the men were made to lather their bodies, particularly the hairy parts, with a solution made of water 10 gallons, Jeye's fluid 1½ ounces, soft soap 1½

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pounds. This lather was allowed to dry on. Shirts were washed in cresol-soap solution made with boiling water. Tunics and trousers were turned inside out and rubbed with this same lather, particularly along the seams, and the lather allowed to dry on. Infected blankets were first treated by soaking them in cresol-soap solution and then sent to a laundry with which a contract rate for washing them was made. This method was applied over a period of several months until a portable Thresh's steam disinfecting apparatus was supplied to the division. The method described, though simple, was found to be thoroughly efficacious.

37. **A Simple Method of Administering Drugs Under War or Other Strenuous Conditions, by F. W. Tunnicliffe,* prescribes the drug to be given in a semi-solid aromatic base and to enclose the mass in a collapsible tube such as is generally used to contain remedies for external application. The base must be sufficiently viscid to enable a continuous semi-solid jet of substance to be exuded from the nozzle by pressure at the bottom of the tube. With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. An inch can easily be measured against the last joint of the thumb. As a constituent of the base there should be some aromatic substance which promotes salivation and thus reflexly stimulates swallowing. Dr. Tunnicliffe says that so far as he is aware any drug, crystalloid or otherwise, or any first dressing of wounds, except hydrogen peroxide, can be administered in this form in adequate concentration.

Journal of the Royal Naval Medical Service

January, 1915.

38 *Wounded Treated at the Royal Naval Hospital, Shotley. Christopher L. W. Burton.
39 *The Naval Action off Helgoland. Walter K. Hopkins.
40 *Wounded Treated at the Royal Naval Hospital, Chatham. W. G. Axford.
41 *Wounded Treated at the Royal Naval Hospital, Plymouth. By the Medical Officers.
42 A Simple Method of Localizing Bullets. S. Bradbury.
43 *Report on the Transport and Treatment of Wounded in the Hospital Ship *Plassy*. M. L. B. Rodd.
44 Typhoid and its Prevention. P. W. Bassett-Smith.
45 The Flying Service, from a Medical Point of View. Hardy V. Wells.

38. **Wounded Treated at the Royal Naval Hospital, Shotley, by Fleet Surgeon Christopher L. W. Burton,* officer in charge of the Shotley Hospital, states that exclusive of patients

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attended for minor abrasions and contusions, 193 cases had up to the date of writing been admitted to the hospital. These comprised 107 cases of shell wounds, 37 cases of burns, 30 cases of shock from prolonged immersion, 11 cases resulting from the inhalation of lyddite fumes, 6 cases of severe sprains, contusions or concussion and 2 cases of bullet wounds. Many of the patients suffered from a combination of injuries. At the time of writing 10 deaths had resulted, 4 from multiple shell wounds, 2 from inhalation of lyddite fumes, 1 from burns and 3 from combined effect of lyddite fumes and burns. Six major amputations had been performed, 3 of the leg, 2 of the arm and 1 of the upper limb through the shoulder joint. A classified description of injuries and treatment is comprised in the article.

39. **The Naval Action off Helgoland, by Fleet Surgeon Walter K. Hopkins,* has a threefold interest, literary, historical, medical. The article opens with a vivid description of the morning of the battle, the beginning of the action and the anxious uninformed waiting of the surgeon and his helpers in the after breadroom of the ship made resonant with the rap and woomp of shells falling short and striking. Surgeon Hopkins was on the *Fearless* during the action and also had charge of the wounded on the *Laertes* after that was taken in tow by the *Fearless*. He vividly describes his patients and their treatment. After they had been safely bestowed in hospital at Shotley he wondered if he had spent too much time in the early cleansing of the patients, but later learned from the staff surgeon that the patients from the *Fearless* had progressed more favorably than earlier ones received, and that this was put down to the fact that they had received very early and thorough cleansing.

40. **Wounded Treated at the Royal Naval Hospital at Chatham, by Fleet Surgeon W. G. Axford,* relates to cases received from ships in the naval action off Helgoland, and to those from the Naval Brigade engaged in the defense of Antwerp. In the former the wounded were received within 24 hours from the receipt of injury, while in the other an interval of six to eight days occurred. During part of this interval treatment had been received in Antwerp hospitals, but in the approaching fall of the city the wounded were hurriedly transferred successively to Ghent, Bruges and Ostend, whence they embarked for England, thus affording little time for either rest or treatment. All these wounds were septic on admission to the hospital at Chat-

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ham, and all the injuries, save one, were caused by bursting shell. The exception was a revolver wound of the knee-joint. Thorough antiseptic treatment was adopted and drainage to all wounds in which shell fragments had lodged. Antiseptic vaccine was injected in all cases showing systemic infection, and a prophylactic dose of tetanus antitoxin given in cases where wounds had been in contact with soil from the trenches. Of the 153 wounded received no case of tetanus developed and only one death. The number of operations performed was fifty-two.

41. **The Wounded Treated at the Royal Naval Hospital, Plymouth, by the Medical Officers,* states that the work of this hospital only began to assume a special character with the arrival on October 15th of 673 sick and wounded Belgian officers and men. Among them there were upwards of 250 suffering from various medical affections due to exposure and fatigue. Thus 133 were cases of rheumatism, sciatica and lumbago; 50 cases of bronchitis. The wounds caused by rifle bullets and shells numbered over 200 and are grouped together with those of the 212 English wounded received a fortnight later, making a total of 389 such wounds. In this series, excluding trivial procedures such as the removal of a foreign body, there were performed 76 operations. In all 180 cases were submitted to X-ray examination and in 53 of these bullets or fragments of metal were found.

One fact often mentioned by others was frequently noticed—the difficulty of feeling a bullet, even a large round shrapnel, in the tissues of the operation wound. When a fracture existed the difficulty of distinguishing bone from metal was very great. The telephone probe proved to be of great value. Tetanus antitoxin was freely administered and up to the time of writing no case of tetanus had occurred.

43. **Report on the Transport and Treatment of Wounded in the Hospital Ship "Plassy," by Fleet Surgeon W. L. B. Rodd.* Two trips were made from Calais to Southampton with Belgian soldiers and two trips from Dunkirk to Cherbourg with French soldiers, 2,023 wounded in all being conveyed. The majority of the wounds were of incredible severity. This is attributed to the great number of anaerobic micro-organisms found in the soil and to the intense cultivation of the lands in Belgium and France. There was marked lack of shock but a much lowered vitality. This was treated with brandy and bovril which in

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some cases were given together. The wounded were received from ambulance trains. For cot cases these consisted of ordinary horse vans which had been cleaned out and fitted with steel uprights to which were attached steel supports which accurately fitted the French service structures, so that once in the stretcher the patient was taken to the ambulance train and thence to the base hospital without once being taken off the stretcher. This method is commended. In cases where splints were used these were mostly of cardboard, but there were some very efficient of wire. The French first field dressings were good and iodine had been used. In some cases the bandages had been too tightly applied, with disastrous results.

The writer visited the French hospital ship *La Bretagne*. No ward accommodation was prepared and the cabins were used for cot cases. The first salon was fitted with stretchers as cot cases. These were prevented from movement by pieces of wood nailed to the deck and arranged to exactly fit the legs of the stretcher. This is to be commended as a quick method for the hospital carrier and for the avoiding of much movement of the patient. In the center of the salon was an operating table and equipment which naturally could be only an emergency fitting. The majority of French soldiers had received antitetanic serum, this fact being noted in each case by a card attached to the patient, and which also gave the diagnosis, etc. The sisters and nurses removed all dressings or had them loose ready for inspection. The medical officers of their respective wards then saw all cases and either gave them personal attention or issued instructions as to how they should be dealt with. This method expedited matters and made it possible to give attention to all cases though they were so short a period in the ship. When the patients were being disembarked special notice was taken of urgent cases at Southampton. These urgent cases were sent to Netley by motor ambulances instead of long distances by train. Similar precautions were taken at Cherbourg. The writer expresses his appreciation of the excellent arrangements for disembarking the wounded at Southampton, on the first occasion by the military, on the second occasion by the naval authorities. There was no delay, everything was immediate, without hurry and worked smoothly. The article comprises descriptions of thirty-two emergency operations preformed on the ship.

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The Glasgow Medical Journal

January, 1915.

46 Rejections Among Recruits; Some Statistics. John Fergus.
47 *The New B. P.: Some Notes for the Use of Prescribers.

47. **The New B. P.: Some Notes for the Use of Prescribers.* A new edition of the British Pharmacopœia came into force on the first of January, 1915, and this article is composed of notes and tables in reference to changes from the previous editions.

AUSTRALIA

Medical Journal of Australia.

November 28, 1914.

48 *The Australian Voluntary Hospital Abroad. Herschel Harris.

48. **With the Australian Voluntary Hospital Abroad, by Dr. Herschel Harris,* is a brief but interesting account of this hospital's experience on landing at Havre and later on its transfer to St. Nazaire and its arrangement and treatment of cases.

INDIA

The Indian Medical Gazette.

December, 1914.

50 Training of Senior Indian Medical Service Officers in the Home Commands. P. Hehir.
51 Studies in Malaria. H. Stott.
52 The Treatment of Suppuration by Pus Inoculations, and the Treatment of Pneumonia by Subcutaneous Injections of the Patient's Own Blood. V. Nesfield.

RUSSIA.

Woyenno-Medicinski Journal

March, 1914.

53 History of Cholera Epidemics in Russia. A. E. Zebold.
54 Cysts of the Appendix. G. N. Orlow.
55 *Three Cases of Fatal Falls in Athletics. S. Th. Krotkow.
56 *Observations on the Destructive Effect of the Russian Sharp-pointed Bullet. S. N. Zdanowski.
57 A Live Parasite in the Nasal Cavity. A. I. Larionow.
58 Extrasystole in Limited Cardio-Vascular Diseases. W. W. Nyefedow.
59 Morphologic Blood Changes in Some Diseases of the Lung. W. P. Lapshin.

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60 "Drunken" Bread. W. A. Uglow.
61 Half a Year in Pekin and a Week in Tokio (1913). (To be concluded.) J. I. Zdrawomujsslow.

55. **Three Cases of Fatal Falls in Athletics, by Krotkow,* is a report of three soldiers who fell, striking with the full weight of the body on the head, while in the act of turning in the air (somersault). Each of the patients was brought to the hospital within a very brief time after the accident on litter. All patients complained of intense pains in the back of the neck. There was complete paralysis of the lower extremities and soon paralysis and paresis of the upper extremities occurred. Pupils were normal and little was noted with regard to changes in pulse, temperature and respiration. The patients lived from 52 to 70 hours and toward the end had breathing of the Cheyne-Stokes character. Patellar and tendon reflexes were absent from the beginning. While the patients retained consciousness almost toward the end there was total loss of sphincteric control. Necroscopy was held in two cases. There was dislocation and forcing together of cervical vertebræ, subdural hemorrhage and hyperemia. Otherwise nothing noteworthy was seen.

56. **Observations on the Destructive Effect of the S-bullet, by Zdanowski,* is a brief account of seven deaths of prisoners who were shot with the new Russian infantry bullet (similar to ours) while attempting to escape their guards, at 200 to 220 paces. In all it was noted that the wound of entrance was small but the wound of exit large and irregular. One corpse showed, for example, a small wound at the occipital protuberance and a large wound at the forehead. The brain was found several yards from the body. In a case involving the thigh the muscles near the wound of exit were torn into irregular rags of large size.

The other cases were fatal because the spinal cord had been severed, the bullet having entered from behind, appearing at the sternum and leaving a large irregular hole.

The author remarks that while military science is seeking weapons and missiles with the most effective ballistic qualities, the new bullet cannot be said to be "humane," and that the new equipment violates the spirit of the Geneva and The Hague conventions, because instead of placing the antagonist merely *hors de combat* it produces mutilation and death, especially at close ranges.

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Reviews

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON GENERAL'S OFFICE, United States Army. Authors and Subjects. Second Series. Vol. XIX U. Uzielli. 1914. Cloth, 8vo, 674 pp. Government Printing Office, Washington, D. C.

The extent of the literature in one of the minor letters of the alphabet is demonstrated by this volume of the second series of the index catalogue which includes only the letter U and yet has 3,046 author titles representing 13,053 volumes and 2,744 pamphlets. It also contains 37,036 subject titles of separate books and pamphlets and 33,739 titles of articles in periodicals. The precis of the Index Catalogue as given by Lieut. Col. Champe C. McCulloch, Jr., M. C., U. S. A., the Librarian of the Surgeon General's office, shows that up to date the number of titles in both series so far published include under author titles 334,399 titles; 164,677 volumes and 308,782 pamphlets, and under subject titles 298,785 book titles and 1,121,517 journal articles, together with 5,179 portraits. The Surgeon General's library now contains 189,171 bound volumes and 325,639 pamphlets.

WHY DO THE NATIONS HATE *Us*? (Warrum hassen uns Voelker?) A brochure by Dr. Magnus Hirschfeld of Berlin. Bonn: A. Narcus & C. Webers Verlag. 1915.

This little brochure, written as a psychologic study by a well-known physician and author, undertakes a rather analytical inquiry into the reason why so many nations show anti-German sentiment. The present European War came as a surprise to the educated Germans, many having believed that owing to international congresses, athletic meets and the general exchange of scientific and other publications, humanity had ceased to draw sharp political border lines. The author rejects as ridiculous the idea that certain mannerisms of the Germans may make them disliked wherever they are seen and recognized in foreign lands. Nor does he think that the often disagreeable bluntness of critics,

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scientists and men of letters in intercourse with foreign colleagues has much to do with the hatred now so plainly shown.

The author gives in narative form the struggles of the Germans for scientific and commercial supremacy and the opposition and envy they have aroused in certain quarters.

The little brochure, which costs only 80 pfennigs (20 cents), is written in simple language, thus making it understandable to all, even those who have but a limited knowledge of German.

INTERNATIONAL CLINICS. A Quarterly. Edited by Henry W. Cattell. Volume IV. 1914. Philadelphia: J. B. Lippincott Co. pp. 314. Price, $2.00.

Thirty well written articles covering diagnosis and treatment and surgical subjects, many well illustrated, are presented in this work. Every one of them is worthy of perusal. An article dealing with a visit to the Mayo Clinic appears under the department of surgery, which should have been classified as a special article. Written by Skillern of Philadelphia, a well-known surgical writer, one feels that whatever tribute is paid the Rochester surgeons and their equipment, it has been done purely as a matter of record. The article has several illustrations showing the building and interior of the Mayo Clinic. As the reveiwer has on a similar occasion sharply criticized the tendency in some quarters to publish photographs of surgeons and hallways of specially fitted offices "at the request of many readers" of a certain scientific publication, it is but proper to state that in this instance the modest illustrations are to be laid at the door of the author of the article under consideration, as a tribute, unsolicited and unsought, to two deserving workers, and no doubt to afford those readers who have not visited the Mayo Clinic "travelogue" opportunity to follow the author on his interesting surgical trip.

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Correspondence

NOT AN ANTI-VACCINATIONIST

To the Editor:

Will you kindly give space to the announcement that in the January issue of *Health Culture,* an anti-vaccination monthly, edited by Dr. Elmer Lee, 1133 Broadway, New York, there is published under my name an article containing a few sentences taken from what I had previously published, but all the rest is a jumble of absurd statements, some being the exact opposite of what I have published on the subject of immunization. I understand that the unknown scoundrel who wrote the article first published it in a paper devoted to patent medicines, whence it was "lifted" by a yellow newspaper. As a result anti-vaccinationists have congratulated me upon joining their ranks.

On two other occasions yellow newspapers, without my consent, have published garbled extracts from my works in such a way as to give a false impression of the subject and as though they were special articles. There ought to be a way of stopping what is worse than plagiarism, but there isn't, so I must ask the profession not to believe what Dr. Elmer Lee has published as my views, but to accept only what has appeared in reputable journals under my name.

CHAS. E. WOODRUFF, M. D.,
Lt. Col. U. S. A. (retired)

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News of the Services

ARMY

Lieut. George R. Callender has been granted two months' leave.

Capt. George E. Pariseau has been assigned to duty at Fort Hancock, N. J.

Capt. A. O. Davis has been granted three months' leave of absence from April 1.

Capt. Alexander D. Page has been granted one month's leave of absence.

Col. Charles E. Woodruff and Mrs. Woodruff sailed for the Bermudas February 17.

Capt. Condon C. McCornack has been granted one month and fifteen days leave of absence.

Lieut. Henry D. Snyder has been detailed a member of the examining board at Ancon, Canal Zone.

Maj. Wm. L. Little has been ordered to Ft. Monroe, Va., for duty in coast defense, Chesapeake Bay.

Lieut. Joseph L. Sanford, M. R. C., has been ordered to active duty with station at Fort Oglethorpe, Ga.

Capt. Joseph Casper has been assigned to temporary duty with the Second Division at Texas City, Tex.

Capt. Howard Snyder has been assigned to temporary duty in the Second Division at Texas City, Tex.

Capt. George W. Cook has been granted one month's leave of absence in addition to the one already granted.

Lieut. John F. Denton, M. R. C., upon his relief from duty at Fort McPherson, Ga., will return to his home.

Lieut. Edwin P. Seaver, M. R. C., has been relieved from duty at Fort Rodman, Mass., and will proceed to his home.

Capt. Norman L. McDiarmid has been assigned to temporary duty with the Second Division at Texas City, Tex.

Lieut. Thomas I. Price, M. R. C., has been relieved from duty at the Army Medical School and has returned to his home.

Lieut. John B. Anderson has been relieved from duty with the Second Division and assigned to duty at Fort Sam Houston, Tex.

Lieut. Raymond C. Bull has been ordered to the Walter Reed General Hospital, Washington, D. C., for observation and treatment.

Lieut. Adolphus McDaniel, M. R. C., has been relieved from duty at Fort Crockett, Tex., and assigned to duty at Texas City, Tex.

The resignation of his commission by Lieut. John A. Wyeth, M. R. C., has been accepted by the President and took effect February 6.

Capts. Howard McSnyder, Alexander D. Parce, Norman L. McDiarmid and Joseph Casper have been directed to proceed to Douglas, Ariz., and

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report in person to the commanding general, Sixth Brigade, for assignment to duty instead of to Texas City, Texas.

Lieut. Waldemar A. Christensen, M. R. C., has been relieved from duty at Fort Huachuca, Ariz., and assigned to station at Douglas, Ariz.

Lieut. William C. Bailey, M. R. C., has been relieved from duty at the Army Medical School, Washington, D. C., and will return to his home.

Leave of absence for one month has been granted to Lieut. George F. Lull, after which he will assume duty with the 29th Infantry at New York City.

A son, Frederick C. A. Kellam III, was born to Lieut. Frederick C. A. Kellam, Jr., and Mrs. Kellam at Pettit Barracks, P. I., December 27, 1914.

Lieut. Edgar Haines, M. R. C., will report to the commanding officer Southern Department for assignment to duty with station at Fort Snelling, Minn.

The resignation of Lieut. Sanders L. Christian, M. R. C., of his commission in that corps has been accepted by the President and took effect February 6.

Maj. Frank T. Woodbury has been relieved from duty at Columbus Barracks, Ohio, and ordered to proceed with the 29th Infantry to the Canal Zone.

Capt. James Bourke has been relieved from duty at Fort Crockett, Tex., and assigned to duty with the Second Division, with station at Fort Wayne, Mich.

Capt. Clarence H. Connor has been transferred from San Francisco, Cal., to the Letterman General Hospital at the Presidio of San Francisco, Cal., for duty.

Lieut. Benjamin O. Thrasher, M. R. C., has been relieved from duty on the transport *Cristobal* and assigned to duty at the Port of Embarkation, Galveston, Tex.

Lieut. Madison H. Bowman, M. R. C., after arrival in the United States and upon expiration of his leave of absence, will be assigned to duty at Fort McPherson, Ga.

Capt. James Bourke has been relieved from duty at the Port of Embarkation at Galveston, Tex., and assigned to duty with Field Hospital No. 3 at Galveston.

Capt. Paul L. Freeman, after arrival in the United States and upon expiration of leave of absence, will be assigned to duty at the Walter Reed General Hospital, Washington, D. C.

Capt. Condon C. McCormack, after arrival in the United States and upon expiration of leave of absence, will take station with Ambulance Company No. 1 at Fort D. A. Russell, Wyo.

Capt. Alexander T. Cooper, after arrival in the United States and upon expiration of leave of absence, will report to the commanding officer, General Hospital, Fort Bayard, N. Mex., for duty.

Capt. William A. Powell, now on temporary duty in the Southern Department, has been relieved from duty at the Presidio of San Francisco and assigned to station at Fort Des Moines, Ia.

Capt. Frank W. Weed, after arrival in the United States and upon expiration of leave of absence, will proceed to the Presidio of San Francisco, Cal., and report for duty to the commanding officer.

Lieut. Everett A. Anderson, M. R. C., after arrival in the United States

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and upon expiration of leave of absence, will proceed to Fort Leavenworth, Kan., and report to the United States Military Prison for duty.

Capt. John B. H. Waring has been designated to conduct a correspondence course under the supervision of the Chief, Division of Militia Affairs, for medical officers of the Organized Militia of Colorado and Utah.

Maj. Allie W. Williams was a member of the board of officers which met at Washington Barracks, February 9, 1915, for the examination of candidates for probational appointment as second lieutenants in the Corps of Engineers.

Capt. Alexander D. Parce has been relieved from duty at the Letterman General Hospital, at the Presidio of San Francisco, Cal., and assigned to duty with the Second Division and will be stationed at Fort Benjamin Harrison, Ind.

Lieut. Lewis A. Laventure, M. R. C., has been relieved from duty at Fort Missoula, Mont., and will proceed to his home. Lieut. Laventure has been granted two months and nineteen days leave of absence and upon the expiration of this leave he will be relieved from duty in the Medical Reserve Corps.

Col. L. Mervin Maus delivered an address before the Harlem Medical Association on "The Army Medical Corps in Peace and in War," illustrated by lantern slides showing the various phases of the sanitary work performed by the Medical Corps in Cuba, Porto Rico, the Canal Zone and the Philippine Islands.

We regret to announce the death of Mrs. Mary Waters Allen Koerper, wife of Major Conrad E. Koerper, at Texas City, from pneumonia after a short illness. She is survived by her husband and a son six years old. The funeral services were held February 13 at St. Margaret's Church, Washington, and interment was at Arlington. Major Koerper and son accompanied the remains to Washington.

NAVY

Surg. H. D. Wilson has been ordered to the *Utah*.

Surg. M. K. Johnson has been ordered to the *Montana*.

Surg. J. C. Thompson to Navy Recruiting Station, San Diego, Cal.

P. A. Surg. H. V. Cornett has been ordered to the Naval Station at Canacao.

Asst. Surg. L. H. Roddis has been ordered to the Naval Hospital at Canacao.

Asst. Surg. D. C. Post has been detached from the *Palos* and ordered to Quiros.

P. A. Surg. William Chambers has been ordered to the Naval Station at Olongapo.

P. A. Surg. M. C. Baker has been ordered to the Naval Station at New Orleans, La.

P. A. Surg. E. V. Valz has been transferred to the Naval Hospital at Portsmouth, N. H.

Surg. J. F. Murphy has been detached from the *Montana* and ordered home to await orders.

Surg. W. S. Hoen has been detached from the Pacific Reserve Fleet and ordered to Colorado.

Surg. F. E. McCullough has been detached from the Naval Training

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Station at Newport and ordered to the Naval Training Station at San Francisco.

P. A. Surg. F. G. Abeken, detached Naval Station, Guam, and ordered to the U. S. Supply Depot.

The resignation of Surg. Louis Lehrfied has been accepted and took effect on January 29, 1915.

Surg. J. M. Brister has been detached from the *Utah* and ordered to the Atlantic Reserve Fleet.

P. A. Surg. J. G. Ziegler has been detached from the *West Virginia* and ordered to the Pacific Torpedo Flotilla.

Asst. Surg. G. W. Calver has been detached from the Supply Depot and ordered to the Naval Station at Guam.

P. A. Surg. C. N. George has been detached from the Pacific Torpedo Flotilla and ordered home to await orders.

Asst. Surg. M. B. Hidden, M. R. C., has been detached from the Naval Hospital at Canacao and ordered to the *Palos*.

P. A. Surg. F. E. Porter has been detached from the Naval Hospital at Yokohama and ordered to the U. S. Ship *Cincinnati*.

P. A. Surg. L. M. Schmidt has been detached from the *Louisiana* and ordered to the *Montana*; connection, Regiment Marines.

Surg. J. C. Pryor has been detached from the *North Dakota* and ordered to the *Montana* in connection with the Regiment Marines.

Surg. H. E. Odell has been detached from the Naval Hospital, Canacao, and transferred to the Naval Hospital at Yokohama, Japan.

Surg. D. N. Carpenter has been detached from the Bureau of Medicine and Surgery and ordered to the Naval Training Station at Newport, R. I.

PUBLIC HEALTH SERVICE

Surg. J. A. Nydegger has been granted seven days' leave of absence from February 1, 1915, on account of sickness.

Asst. Surg. B. J. Duffy has been directed to proceed to Washington, D. C., and report at Bureau for further orders.

Surg. C. P. Wertenbaker has been granted leave of absence for one month on account of sickness from January 10, 1915.

P. A. Surg. A. J. Lanza has been directed to deliver in Springfield, Mo., and in Jasper County, a series of lectures on Public Health subjects.

Prof. Carl Voegtlin has been directed to visit Spartanburg, S. C., when necessary, for the purpose of supervising and participating in the special investigations of pellagra.

P. A. Surg. J. P. Leake has been directed to visit Blackwood and such other places in southwestern Virginia as may be necessary to investigate an outbreak of cerebrospinal meningitis.

Asst. Surg. Gen. W. G. Stimpson has been directed to proceed to Philadelphia, Pa., where he is to serve as chairman of a board for the physical examination of certain commissioned officers of the service.

Passed Asst. Surg. E. H. Mullan has been directed to proceed to Philadelphia, Pa., where he is to serve as recorder of a board for the physical examination of certain commissioned officers of the service.

Surg. B. J. Lloyd was detailed at the request of the officers of the League of Washington Municipalities to attend the fifth annual convention of that association, which was held at Olympia, Wash., January 25-27, 1915.

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Sr. Surg. Henry R. Carter has been directed to proceed to Columbia, S. C., and other places in that state, to confer with the state health officer, and afterward to make an investigation in regard to the malaria conditions caused by the impounding of waters by the Parr Shoals Hydro-Electric Company.

The detail for the board of commissioned officers convened to meet at 410 Chestnut street, Philadelphia, Pa., for the purpose of making physical examinations of certain commissioned officers of the Service, consists of Asst. Surg. Gen. W. G. Stimpson, Chairman; Senior Surg. Fairfax Irwin, member; Passed Asst. Surg. E. H. Mullan, Recorder.

Sanitary Engineer J. A. A. LePrince has been directed to proceed to Columbia, S. C., and other places in that state, in order to confer with the state health officer, and afterward, under the direction of Senior Surg. H. R. Carter, to make an investigation in regard to the malaria conditions caused by the impounding of waters by the Parr Shoals Hydro-Electric Company.

Passed Asst. Surg. A. J. Lanza on request of the Springfield Public Welfare Association, Springfield, Mo., has been directed to deliver in that city a series of lectures on Public Health subjects, from February 8 to 11, 1915, after which he will visit such places in Missouri as may be necessary to advise in regard to improvement of sanitary conditions in mines and metallurgical plants, with special reference to the prevention of tuberculosis.

NATIONAL GUARD

Capt. James D. Pasco, M. C., Fla. N. G., has resigned.

Dr. Brannon Hubbard of Montgomery has been commissioned First Lieutenant, Alabama National Guard.

Maj. George S. Crampton, M. C., Pa. N. G., has been relieved from duty with the Second Infantry and assigned to duty at headquarters, First Brigade.

Lieut. Earl B. Downer, M. C., Ohio N. G., assigned First Ambulance Corps, has been appointed staff surgeon, American National Red Cross, and detailed to duty in Servia.

Lieut. Dudley T. Dawson, M. C. Ohio N. G., assigned second field hospital, has completed the course of instruction in the Army Medical School and returned to Columbus.

Lieut. Herbert H. Armington, M. C., R. I. N. G., has been commissioned Captain Medical Corps, vice Capt. Frank A. Fearney, resigned, and will remain on duty with the Hospital Corps.

Col. G. H. Halberstadt, Chief Surgeon of the Reading Coal and Iron Company, announces that he will give a series of lectures on first aid work to the members of the Shamokin Corps.

The Medical and Dental Corps, Ala. N. G., Mobile, Montgomery and Birmingham, were inspected by Major Henry Page, M. C., U. S. A., on January 29 and February 1 and 2 respectively.

Lieut. H. Mason Smith, M. C., Fla. N. G., who has tendered his resignation has been relieved from active duty and assigned to the supernumerary list pending the settlement of his account.

A school for officers and non-commissioned officers of the Medical Corps of the National Guard of Wisconsin, Iowa, Illinois, Indiana, Ohio, Minnesota, Michigan and South Dakota will be held on the National Res-

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ervation, Sparta, Wis., June 21 and 26, 1915. A Field Hospital, Ambulance Company and Regimental Infirmary will be established by the inspector instructors for the purpose of instruction.

Subject to examination, Dr. Theodore C. Hascall has been appointed First Lieutenant M. C., R. I. N. G., vice Capt. Herbert H. Armington, promoted, and has been assigned to the Coast Artillery District, R. I. N. G.

Dr. Zebullon Vance Johnson has been commissioned First Lieutenant, M. C., Fla. N. G., with rank from January 2, and assigned to command of detachment Hospital Corps attached to First Infantry, vice Lieut. H. Mason Smith, relieved.

The sanitary troops of the Third Infantry, Ore. N. G., will be inspected March 8 and the medical supply of the Coast Artillery Corps will be inspected on the same day. The sanitary troops of the Coast Artillery were inspected February 17.

The Ambulance Company of the Oregon National Guard has been disbanded and its commander, Capt. A. Nowell Creadick, has turned over all property and public funds to the mustering out officer, Maj. L. H. Knapp, Quartermaster Corps, Ore. N. G.

Lieut. Edward C. Clarke, M. C., N. Y. N. G., has been transferred from the 55th Infantry and assigned to duty with Company C, Third Infantry, Syracuse. Lieut. Clarke has been appointed instructor in preventive medicine in the College of Medicine in the University of Syracuse.

The Service Club of Company H, First Infantry, Ind. N. G., was inaugurated at the Armory, Bloomington, Ind., by a pig dinner, which was attended by the members of the company, the Hospital Corps of the First Infantry, the regimental band, students of the University of Indiana and citizens.

The sanitary corps for the Second Infantry, South Carolina National Guard, which was formerly stationed at Camden but was mustered out of the service, has been reorganized with headquarters at Columbia, by Lieut. M. B. Edgerton, M. C., S. C. N. G. Maj. Zemp of Camden is Chief Surgeon of the regiment.

The following re-assignments of sanitary troops have been made by the Adjutant General of Washington: Regimental Infirmary, Second Infantry, headquarters at Tacoma, Maj. Oliver R. Austin, Aberdeen and Capts. John S. Byrne, Spokane, J. A. LaGassa, Tacoma, and James A. Durrent, Snohomish, with four sergeants and sixteen privates; Coast Artillery, headquarters at Seattle, Capt. C. M. Burdick with one sergeant and four privates; Cavalry, headquarters at Tacoma, two privates; Signal Corps, headquarters at Seattle, Capt. H. C. Ostrom, with two privates.

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CIRCULAR NO. 18.

WAR DEPARTMENT, OFFICE OF THE CHIEF OF STAFF,
DIVISION OF MILITIA AFFAIRS,
Washington, December 23, 1914.

Section 3 of the amended militia law reads in part as follows:

"On and after January 21, 1910, the organization, armament, and discipline of the Organized Militia in the several States and Territories and the District of Columbia shall be the same as that which is now or may hereafter be prescribed for the Regular Army of the United States, subject in time of peace to such general exceptions as may be authorized by the Secretary of War."

Exercising the discretion thus vested in him as to the general exceptions in peace, and believing that a sufficient time has now elapsed to enable the States to more definitely conform in organization to the Regular Army, the Secretary of War has prescribed the following form of organization for the Medical Department of the Organized Militia of the several States, Territory and the District of Columbia, to meet with the requirements of section 3 of the amended milita law.

MEDICAL DEPARTMENT.

Section 1. The Medical Department of the Organized Militia of the several States, Territory and the District of Columbia shall consist of (1) a Medical Corps, (2) a Medical Reserve Corps, (3) a Dental Corps (optional), and (4) a Hospital Corps. These shall conform in organization, discipline and equipment to like units of the Medical Department of the Army of the United States. The personnel of the Department and all other person assigned to duty therewith shall be collectively known as sanitary troops.

For duty in the field the sanitary troops shall be divided into, first, those assigned to regiments and other units; second, those organized into independent sanitary units as field hospitals and ambulance companies.

MEDICAL CORPS.

Section II. The Medical Corps of the different States, Territory and the District of Columbia shall consist of one chief surgeon and the other medical officers necessary to furnish the commissioned medical personnel of the Organized Militia of the State in compliance with the requirements of the Tables of Organization, Organized Militia, 1914. The rank of these officers shall be commensurate with the size of the Organized Militia of the State as prescribed in the Tables of Organization.

The chief surgeon shall be appointed from among the senior medical officers. He is properly a member of the State headquarters organization, in addition to any duties he may have as a member of or as attached to any organizational unit. He shall be in control of the Medical Department of the Organized Militia of the State, Territory and the District of Columbia subordinate only to the officer commanding the tactical unit, if any, to which he is attached, and to the governor, as commander in chief, acting through his representative, the adjutant general. He will act in the capacity as chief sanitary adviser, and as such will make any recommendations deemed advisable for the health of the commands. He shall have general supervision of the sanitary troops of the Organized Militia, and will be held responsible for their discipline, instruction and efficiency. He will direct and have control over the examinations of all

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candidates for appointment and promotion of officers and non-commissioned officers of the Medical Department. He will make recommendations to his immediate superior concerning the assignment to duty and stations of the entire sanitary personnel of the Organized Militia and the proper administration of the Medical Department.

Section III. All appointments to the Medical Corps of the Organized Militia shall be with the grade of first lieutenant, and no person shall receive such appointment unless he shall have been examined and passed by a medical board consisting of not less than three* officers of the Medical Corps of the Organized Militia designated by the adjutant general of the State, Territory, or the District of Columbia.

Section IV. Promotions in the Medical Corps to fill vacancies in the several grades shall, preferably, be made according to seniority, but all such promotions in said corps shall be subject to examination as hereinafter provided: *Provided,* That all first lieutenants of the Medical Corps who have served for a period of three years or is equivalent as commissioned medical officers of the United States Army or of the Organized Militia, shall be promoted to the grade of captain, provided that they meet with all the requirements of section V. *Provided further,* That any medical officer of the Organized Militia who has given up the active practice of medicine shall be ineligible as an active officer of the Medical Corps.

Section V. No officer of the Medical Corps below the rank of major shall be promoted therein until he shall have successfully passed an examination before a medical board consisting of not less than three officers of the Medical Corps of the Organized Militia to be designated by the adjutant general of the State, Territory or the District of Columbia, such examination to be prescribed by the adjutant general upon recommendation of the chief surgeon, and to be held at such time anterior to the accruing of the right to promotion as may be for the best interests of the service: *Provided,* That should any officer of the Medical Corps fail in his physical examination and be found incapacitated for service by reason of physical disability contracted in line of duty, he shall be retired with the rank to which his seniority entitled him to be promoted; but if he should be found disqualified for promotion for any other reason, a second examination shall not be allowed, but the adjutant general shall appoint a board of review to consist of three officers of the Medical Corps of the Organized Militia of the State, Territory or the District of Columbia,* superior in rank to the officer examined, none of whom shall have served as a member of the board which examined him. If the unfavorable finding of the examining board is concurred in by the board of review, the officer reported disqualified for promotion shall be honorably discharged from the service. If the action of the examining board is disapproved by the board of review, the officer shall be considered qualified and shall be promoted.

Section VI. That all medical officers on active duty in the Organized Militia of the several States, Territory and the District of Columbia, conforming to the requirements of Tables of Organization, 1914, may be

*When impossible to assemble a sufficient number of medical officers on the active list for this purpose, medical officers on the retired list may serve as members of these boards, but the president of such boards must be a member of the Medical Corps on the active list.

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retained, without examination, in the Medical Corps as reconstructed under the requirements of this circular without loss of relative rank or right to promotion.

MEDICAL RESERVE CORPS.

Section VII. That for the purpose of securing a reserve corps of medical officers available for military service, the governors of the several States, and legally qualified practitioners of medicine and surgery, in accordance with the laws of the several States, Territory, and the District of Columbia, as shall from time to time, upon examination to be prescribed by the adjutant general, upon recommendation of the chief surgeon, be found physically, mentally and morally qualified to hold such commissions, the persons so commissioned to constitute and be known as the Medical Reserve Corps. The commissions so given shall confer upon the holders all the authority, rights and privileges of commissioned officers of the like grade in the Medical Corps of the Organized Militia, except promotion, but only when called into active duty, as hereinafter provided, and during the period of such active duty. Officers of the Medical Reserve Corps shall have rank in said corps according to date of their commissions therein, and when employed on active duty, as hereinafter provided, shall rank next below all other officers of like grade in the Organized Militia.

Section VIII. In emergencies the adjutant general, upon recommendation of the chief surgeon, may order officers of the Medical Reserve Corps to active duty in the service of the Organized Militia of the State in such numbers as public interests may require, and may relieve them from such duty when their services are no longer necessary: *Provided,* That no officer of the Medical Reserve Corps who is unwilling to accept such service, shall be ordered upon active duty as herein provided. *And provided further,* That the governor of a State or the commanding general of the District of Columbia militia is authorized to honorably discharge from the Medical Reserve Corps any officer thereof whose services are no longer required. *And provided further,* That any officer of the Medical Reserve Corps who is subject to call and who upon being ordered upon active duty as herein provided refuses to accept such service, shall forfeit his commission.

Section IX. Officers of the Medical Reserve Corps when called upon active duty in the service of the Organized Militia, as provided in Section VIII of this Act, shall be subject to the laws, regulations and orders for the government of the Organized Militia, and during the period of such service shall be entitled to the pay and allowances of first lieutenants of the Medical Corps.

APPOINTMENT OF MEDICAL OFFICERS IN THE ORGANIZED MILITIA.

Section X. An applicant for appointment in the Medical Corps of the Organized Militia must be between 22 and 34 years of age, must be a citizen of the State, must have a satisfactory general education, must be a graduate of a reputable medical school legally authorized to confer the degree of doctor of medicine; must be a legally qualified practitioner in the State, and must have had at least one year's hospital training, including practical experience in the practice of medicine and surgery, or its equivalent in practice.

(*a*) Appointments to the Medical Corps are made by the governor and commander-in-chief, upon the recommendation of the chief surgeon

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after the applicants have passed the prescribed examination. The examination to consist of three parts—physical, mental and moral.

(*b*) Permission to appear for examination should be applied for by letter to the adjutant general of the State, Territory or the District of Columbia. The application must be wholly in the handwriting of the applicant, must give the place and date of birth, his residence, and must inclose certificates, based upon personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The applicants meeting with the above requirements will in due season be formally invited to appear before the examining board convened at a convenient point, and a date will be fixed for their appearance.

EXAMINATION.

Section XI. The examinations will be conducted, under instructions from the chief surgeon, by a board consisting of at least three* commissioned medical officers convened for the purpose.

Each applicant, upon presenting himself to the board will, prior to his physical examination, be required to fill out and sign a statement as to his nativity, age, citizenship, certificate authorizing him to practice his profession in the State, and to submit his medical diploma. He will also sign the following certificate:

"I certify to the best of my knowledge and belief that I am not affected with any form of disease or disability which will interfere with the performance of the duties of an officer in the Medical Corps to which I am about to undergo examination."

PROFESSIONAL EDUCATION.

Section XII. This will be in the following subjects, upon questions prepared by the board: Anatomy; physiology; histology; chemistry; physics; materia medica; therapeutics; surgery; practice of medicine; obstetrics; gynecology, and hygiene.

The board will examine and mark the papers, taking into consideration the following:

English grammar, orthography, composition, and aptitude for the service.

Applicants who have been found physically qualified, and whose general education and English grammar, orthography and composition have been found satisfactory, and who make a general average of 75 per cent in the professional examinations and aptitude, will be reported to the adjutant general as qualified.

EXAMINATION FOR PROMOTION.

Section XIII. The examination of an officer for promtion will be conducted in the following order:

(*a*) As to physical fitness.
(*b*) As to general efficiency.
(*c*) As to professional fitness.

The board will make a thorough physical examination of the officer being examined. In doubtful cases they will be guided by the following:

"An incurable disease or injury, or a disease or injury not curable within a reasonable time, either of which is of such a character as to

*See footnote on page 284.

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disqualify an officer for duty on the active list, constitutes incapacity for service. If, however, a disease or injury be curable within a reasonable time, the officer should be regarded as physically qualified for promotion. The question as to the curability of a disease or injury is one for the board to decide, but if unable to determine such question, it should be recommended that the officer be re-examined after such period as, in its opinion, may be necessary to permit a determination to be reached."

When the board finds an officer incapacitated for active service by reason of physical disability, further examination will cease and the board will report its findings, stating in full the cause of disability and whether or not it was contracted in the line of duy. If the board finds the officer physically fit to perform the duties of a medical officer in the Organized Militia the examination in general efficiency and professional fitness will follow.

EXAMINATION AS TO GENERAL EFFICIENCY.

Under this head the board will consider (1) the use an officer has made of his opportunities in the Organized Militia; (2) his ability to apply practically his professional knowledge; (3) his general trustworthiness and ability in the performance of his professional duties, and (4) his ability to handle and control men. To this end the adjutant general of the State, Territory or the District of Columbia will forward to the board all papers on file in his office relating to the officer's efficiency, and these will be considered by the board. In the absence of competent evidence to the contrary, an officer's fitness as to general efficiency will be presumed.

EXAMINATION AS TO PROFESSIONAL FITNESS.

The examination of an officer is for the purpose of testing his knowledge of the duties that may devolve upon him when promoted. It will be in no sense scholastic, or such as to require him to memorize data and statistics ordinarily found in reference tables. Practical exercises and problems will not be framed so as to require a knowledge or training greater than may be required of him when promoted to the next higher grade. In judging an officer's professional qualifications, the board will take into consideration his age, service, and the duties he has been required to perform.

The character of the examination for promotion as to professional fitness will be as follows:

(*a*) In all cases the examination will be oral, practical or written, or some combination of these, as indicated below opposite the names of the subjects.

(*b*) Should an officer fail to make a general average of 70 per cent in the oral examination, he will be re-examined at once in writing on all subjects in which he failed.

(*c*) In case of failure in the practical part of any examination, the board will conduct a second practical test of sufficient scope to determine beyond doubt the officer's knowledge of the subject.

No officer will be recommended by the board as qualified for promotion who fails to pass a satisfactory examination as to his physical fitness, general efficiency and professional fitness.

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The following is the scope of the professional examination for the promotion of medical officers in the Organized Militia:

First Lieutenant to Captain.

Subjects:

(*a*) Subjects covered in courses: Year A, B and C. Circular No. 3, War Department, Division of Militia Affairs, February 26, 1914. Oral and practical.

(*b*) Hygiene, general and military. Oral. Practice of medicine, including recent progress in etiology, pathology and therapeutics. Oral.

(*c*) Surgery, including recent progress in etiology, pathology, therapeutics and new operative procedures. Oral.

Captain to Major.

(*a*) All subjects covered in courses prescribed for medical officers in Circular No. 3, War Department, Division of Militia Affairs, February 26, 1914. Oral and practical.

(*b*) Hygiene, general and military. Oral.

(*c*) Practice of medicine, including recent progress in etiology, pathology and therapeutics. Oral.

(*d*) Surgery, including recent progress in etiology, pathology and therapeutics. Oral.

EXEMPTIONS FROM CERTAIN SUBJECTS.

Officers producing certificates showing that they have successfully completed any of the prescribed courses for medical officers on pages 40-42, Circular No. 3, War Department, Division of Militia Affairs, February 26, 1914, will be exempt from examination for promotion on the subjects covered by such.

DENTAL CORPS (OPTIONAL).

Section XIV. Dental surgeons are authorized at the rate of not to exceed one for each thousand of actual enlisted strength. All original appointments to the Dental Corps shall be as acting dental surgeons, and after three years' service in a manner satisfactory to the governor, or commanding general District of Columbia militia, such appointees may be appointed dental surgeons and be commissioned as first lieutenants in the Dental Corps.

Section XV. That the Hospital Corps of the Organized Militia of the several States, Territory and the District of Columbia shall consist of such number of sergeants, first class; sergeants; corporals; acting cooks; privates first class, and privates as shall be required to comply with the provisions of Tables of Organization, Organized Militia, 1914. That all necessary hospital service in camps or the field (including ambulance service), shall be performed by the members thereof, who shall be regularly enlisted in the military service; said corps shall be permanently attached to the medical department.

Section XVI. The adjutants general of the Organized Militia of the several States, Territory and the District of Columbia is empowered to appoint as many sergeants, first class, sergeants and corporals as the

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service may require, but not more than are provided for in the Tables of Organization, Organized Militia, 1914.

Section XVII. No person shall be appointed as sergeant, first class, unless he shall have passed a satisfactory examination before a board of one or more medical officers of the Organized Militia as to his qualifications for the position, and demonstrated his fitness therefor by service of not less than twelve months as a sergeant; and no person shall be designated for such examination except by written authority of the chief surgeon.

Section XVIII. The adjutant general will cause to be enlisted as many privates of the Hospital Corps as may be necessary to meet the provisions of the Tables of Organization, Organized Militia, 1914, and any enlisted man in the Organized Militia shall be eligible for transfer to the Hospital Corps as a private.

By order of the Secretary of War:

A. L. MILLS,
Brigadier General, General Staff,
Acting Chief of Staff.

Official:

C. P. SUMMERALL,
Major, Field Artillery,
Acting Chief, Division of Militia Affairs.

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Memorandum for Medical Officers, Organized Militia*

1. You are informed that arrangements have been completed for the instruction of all officers of the Medical Corps of the Organized Millitia in Medico-Military matters pertaining to the Medical Department.

With this end in view correspondence courses have been inaugurated throughout the United States which will be conducted under the direction of the Division of Military Affairs by officers of the Medical Corps of the Regular Army, and will be open to all medical officers of the Organized Militia who desire to take advantage of them.

2. It is believed these courses will be of the greatest help and assistance to the officers of the Organized Militia, many of whom are receiving no instruction of any kind. They will serve the purpose of desseminating correct ideas of field duties and show the necessity of proper and adequate organization and equipment, thereby standardizing instruction generally. They will also serve to secure true progress and be a means of building up this branch of the service generally which in many States is greatly below the minimum requirements.

3. In order for these schools to be helpful to those affiliated with them it will be necessary for the medical officers to devote a little time to the work. It is realized that the amount of time which officers and men can devote to the military duties is limited. It is not contemplated that the plan of instruction to be carried out shall impose any additional burden to any officer other than that absolutely necessary.

4. It is the aim of the Division of Militia Affairs to make the instruction of the Militia uniform throughout the United States. For this reason the plan outlined in Circular 3, War Department, Division of Militia Affairs (extract following), will be followed. This plan contemplates a basic course comprising those subjects with which it is absolutely essential that the medical officer should be familiar. Besides this four yearly courses, designated A, B, C and D, have been provided. Before commencing the latter course it will be necessary for the medical officers to become familiar with the subjects prescribed in the basic course, and for that reason this entire period will be devoted to it.

5. Next year it is contemplated that the officers who complete the basic course will be designated for Year "A" work per Circular 3, Division of Militia Affairs, and those officers who qualify in this course will later take up the work in the Year "B" course, and so on until the entire course has been completed. Officers who complete the entire course will be given a certificate of proficiency which will receive due recognition by the War Department.

6. The fundamental object in any scheme of instruction is the attainment of field service efficiency for both officers and men. Instruction should therefore be divided into (a) armory and home study and (b) field training. The first must be preparatory for the second and the more thoroughly the theoretical part is mastered the greater will be the progress made in the short periods which can be devoted to field training.

*Issued by the Chief of Staff, Division of Militia Affairs, War Department, January 8, 1915.

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7. It is contemplated to hold camps of instruction for medical officers during the coming summer, at which time a complete field hospital and ambulance company will be in attendance at each camp. At these camps the aim will be to carry out much of the work in practice which was theorized at the home schools or correspondence courses, and no time will be devoted to instruction which should have been mastered prior to the date of the encampment.

In order to carry on the proposed course medical officers should have on hand the following books and publications:

Manual Medical Department 1911
Field Service Regulations 1914
Hospital Corps Drill Regulations..... 1914
Militia Regulations 1910
Army Regulations 1913

In order to obtain these publications requisition or request should be made to the Adjutant General of your State in writing. The only excuse for not having them will be a retained copy of your request or the disapproved action of the Adjutant General.

EXTRACT FROM CIRCULAR 3, WAR DEPARTMENT, DIVISION OF MILITIA AFFAIRS, PRESCRIBING THE DIFFERENT COURSES.

Basic Course.

(a) Manal for the Medical Department, 1911.
Paragraphs 25 to 43, 147 to 177, 248 to 253, 369 to 380, 395 to 468, 484 to 534, 535 to 803.
(b) Hospital Corps Drill Regulations, 1914, entire book.
(c) Field Service Regulations, 1913.
Paragraphs 1 to 24, 33, 285 to 312.
(d) Militia Regulations, 1910.
Paragraphs 1 to 42, 43 to 127, 228, 231 to 232, 242, 308 to 324, 346 to 348, 351 to 358, 390 to 392.
(e) Army Regulations, 1913.
Military discipline, paragraphs 1 to 5.
Deserters, paragraphs 116 to 133.
Deceased soldiers, paragraphs 162 to 167.
Property accountability and responsibility, paragraphs 657 to 726.
Medical Department, paragraphs 1386 to 1492.
(f) Military correspondence.
General Orders, No. 23, War Department, 1911.

YEAR "A."

(a) Army Regulations as far as they relate to the Medical Department and the Medical Officers.
(b) Manual for the Medical Department, Part I.
(c) Drill Regulations, Hospital Corps.
(d) Hygiene, general and military.

YEAR "B."

(a) Manual for the Medical Department, Parts II and III.
(b) Army Regulations as far as they relate to the Medical Department.
(c) Militia Regulations pertaining to the Medical Department.
(d) Drill Regulations, Hospital Corps.

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(e) Field Service Regulations, Organization of the Medical Department; shelter; medical and sanitary units.
(f) Hygiene, general and military.
(g) Conduct of the Sanitary Service, embracing Field Hospitals, Ambulance Companies, Ambulance Stations, Dressing Stations, Regimental Infirmaries, etc.

YEAR "C."

(a) Manual for the Medical Department.
(b) Field Service Regulations, Organization of the Medical Department, shelter, medical sanitary service, instruction for the government of the armies of the United States, including the laws governing The Hague Conference and Geneva Convention.
(c) General Military Hygiene, including epidemology of infectious diseases, quarantine, and other applications of sanitary science and preventive medicine.
(d) Map Reading.
(e) Four problems during the season pertaining to the duties of the Medical Department with a Brigade of Infantry.

YEAR "D."

(a) Manual for the Medical Department.
(b) Field Service Regulations: Laws of War, etc.
(c) Duties of Chief Surgeon in time of War and Peace.
(d) Map reading.
(e) Four Medico-Military problems during the year which shall test the ability of the candidate to apply his knowledge in the practical solution of questions of organization, supply, sanitary precautions, etc., which confront the Chief Surgeon of an independent command at home or abroad.

8. Written exercises in the current courses will be conducted during the study period each year. Sets of questions will be sent out between the first and fifteenth of each month to each medical officer relating to the subject or subjects that he is required to be studying at the time. These questions will be answered the exercises solved, and papers returned direct to the medical officer conducting the correspondence course.

9. In preparing written exercises an officer may consult text-books, but he will be required to certify that the answers given are his own answers and that in the preparation of the same he has received no assistance from any other person.

10. All written exercises will be corrected and graded by the instructor, and the grading given by an officer upon any subject will be the average of the grades attained by him in all of the written exercises upon that subject.

11. Those who attain a percentage of 75 per cent or better in the written exercises upon any subject will be eligible to take examination for certificate of proficiency in such subjects at the close of the course.

12. Those who fail to attain a percentage of 75 per cent in the written exercises upon any subject will be required to repeat the subject in which they were found deficient in the year when the course embracing such subject shall again be taken up. An officer failing to prepare and send in the prescribed written exercises, if he has signified his willingness to

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take the correspondence course, will be marked deficient in the current subjects of his course.

13. An officer who fails to obtain a certificate of proficiency in any subject after taking the same course twice will be considered to have failed in graduation from the Correspondence School, and will be so reported to the Adjutant General of the State.

14. Examination in the course prescribed for the Correspondence School will be held at the close of each study year.

15. As the result of the annual examinations certificates of proficiency will be given to the student officers for each study in which they attain a grading of 75 per cent, and for each course as it is completed.

16. A certificate of proficiency in any of the prescribed courses will excuse an officer holding the same from examination for promotion in that subject.

17. Officers graduating from the Correspondence School whose certificates of proficiency show a grading of 90 per cent or better in all subjects will be designated as "honor graduates."

18. The names of those graduating from Correspondence Schools, and those attaining certificates of proficiency in its several courses, with their relative standing, will be placed on file in the office of the Division of Militia Affairs, and the names of such officers will be furnished to the Adjutant General of the States concerned for their information.

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General News

The Medical Society of the State of New York will hold its one hundred and ninth annual meeting in Buffalo, April 27-29. On account of the European War this will probably be the largest medical meeting of the year, except perhaps that of the A. M. A. in San Francisco. Through the co-operation of the military authorities the meeting will be held in the 65ht Regiment Armory. This armory is one of the largest in the country and will afford accommodations for all activities of the meeting, except the annual banquet. A restaurant will be conducted in the building, there will be ample space for commercial and scientific exhibits and an abundance of halls for general and section meetings. Even an automobile park will be provided on the armory grounds.

The choice of the armory is fortunate in another sense, as indicating the organization of the State Society as an arm of the state government. On the last night of the meeting a regimental parade and review by Gen. Gorgas will be held.

The Modern Hospital Purchases the International Hospital Record. *The International Hospital Record,* which has been published for eighteen years by the Sutton Publishing Company, Detroit, has been purchased by The Modern Hospital Publishing Company of St. Louis and Chicago, and will be merged with the *Modern Hospital,* beginning with the March issue.

The *Modern Hospital* is a monthly magazine devoted to the building, equipment and management of hospitals, sanatoriums and kindred institutions. Recently it has opened several new departments, such as "Philanthropy and the Public Health," "Prevention of Tuberculosis," "Prevention of Blindness," "Dispensary and Out-Patient Work," and "Life Extension." The editorial offices of the *Modern Hospital* are located in Chicago and the publication offices in St. Louis.

The New York Division of the Medical Reserve Corps, United States Army, gave a dinner in honor of Surgeon General William C. Gorgas at the Hotel McAlpin, New York, February 6th. Nearly one hundred members of the organization were present. The attendance included about twenty regular medical officers stationed in and about New York. Dr. Reynold Webb Wilcox presided, and the speakers were General Gorgas, Colonel L. M. Maus, Chief Surgeon of the Eastern Department, Colonel Charles Richard, President of the Army War College, Washington, Dr. John A. Wyeth, president of the New York Polyclinic, and Drs. George Henry Fox and W. M. Brickner. The organization of the Medical Reserve Corps is in a very healthy condition and it holds monthly meetings in the 12th Regiment Armory, where the members receive instruction in the duties of the medical officer.

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Medical Society Holds Military Session.—The first meeting of the Chicago Medical Society in the new year was devoted to military matters. Col. P. J. H. Farrell, U. S. V., presided. Col. William Stephenson, M. C., U. S. A., spoke on "War from the Standpoint of the Military Surgeon," and showed the rifle projectiles at present in use and illustrated how a steel jacketed bullet, by striking a hard substance, might be so deformed as to give rise to the suspicion of its having originally been a soft-nosed or dumdum bullet. Col. Stephenson also spoke of the first aid packet and its use and of the haversack emergency ration. P. A. Surg. Thomas W. Raison, U. S. Navy, gave an interesting paper on "Smallpox and Vaccination," with especial reference to the recent epidemic of smallpox on the U. S. S. *Ohio*. Capt. Gustavus M. Blech, M. C., Ill. N. G., then discussed "The Medical Service in War with Special Reference to the United States Land Forces," described the trials of a volunteer medical officer called suddenly into active service, sketched briefly the multifarious duties of the medical officer and made a strong plea for preparedness.

New Eastman Kodachrome Process.—At a meeting of Roentgenologists held at Atlantic City on January 29 and 30, there were exhibited for the first time pictures made with the Eastman Kodachrome process of pathological subjects. The unanimous opinion of the doctors present was that the pictures were remarkable and that the process would come into important use in medical and surgical study.

WAR NOTES

War Clinics.—The medical schools of the United States are beginning to take interest in the value from a clinical standpoint of the pan-European conflict. Western Reserve University, Cleveland, has taken the lead by sending Dr. George W. Crile, the apostle of Anoci Association to the American Ambulance Hospital at Paris and his work as surgeon in charge of a department of that institution has been watched with great interest by the other surgeons on duty and by the local profession and by the staff. After three months Dr. Crile's term of service ends and it is said that Harvard Medical School, Yale University, Rush Medical College and other institutions may successively be placed in charge of this department of the hospital which is caring for hundreds and thousands of wounded soldiers.

Plastic Surgery.—The plastic surgery which is being practiced so extensively and so successfully at the American Ambulance and other military hospitals is unique as a procedure after war wounds, although common in private practice. It has proved especially beneficial in cases of excessive loss of tissue and laceration from deformed bullets and shrapnel. Skin grafting has been very successfully practiced in this class of wounds.

Soldiers' Feet.—More care has been exercised in this war than ever before as regards the condition of the soldiers' feet, and it has been observed how rapidly the wounds of soldiers have healed after their dental defects have been corrected and their digestion correspondingly improved.

Trench Packages.—During January of this year 185 trench packages were received at the American Ambulance, Paris, and sent to the front. Each of these packages contained a suit of underwear, a flannel shirt, a

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chest protector, an abdominal band, a muffler, a pair of knit gloves or wristers, a pair of socks, a knitted cap, writing paper, envelopes, a pencil, cigarettes, safety pins, a clean piece of cloth and a bandage. Twelve packages were also sent to small hospitals. Each package contained pajamas, socks, comforters, bed socks, surgical dressings and bandages. During the month 403 packages of clothing for refugees were also sent out by the American Ambulance.

The Ambulance Construction Commission.—This is the first great war in which field motor ambulances have been extensively used. It was inevitable that many defects should be found in existing types, and in various quarters experts began to ask whether something could not be done to standardize the patterns and to improve the type. At the instance of Henry S. Wellcome, the founder of the Wellcome Bureau of Scientific Research, a commission has been formed, and the names of members show at once that the matter is regarded as of first importance by those most intimately connected with the welfare of the wounded soldier.

Sir Frederick Treves, whose long experience and distinguished service specially fit him for the task, has consented to be the chairman. The Admiralty is represented by the Director-General of the Medical Department, R. N., while the Quartermaster-General to the Forces and the Acting Director-General, Army Medical Service, represent the War Office. The British Red Cross Society is, of course, represented by Sir Frederick Treves, and the St. John Ambulance Association by Sir Claude Macdonald and Sir John Furley. The remaining members are all experts. This commission will first and foremost act as a judging committee for the award of prizes of the value of £2,000 provided by the Wellcome Bureau of Scientific Research. These prizes are offered for the best designs of an ambulance body which shall fit a standard pattern motor chassis for field motor ambulances. The last day for the receipt of competing designs is June 30, 1915. It is hoped that the competition will bring in a number of ingenious designs, from which the ideal field ambulance body will be evolved.

It may be asked why the competition is restricted to designs for a body and not for the complete ambulance, including a chassis. The reason is that a chassis takes much longer to build than a body, and that, when war breaks out, it is impossible to get at short notice anything like a sufficient number of any one type of chassis. On the other hand, a standardized body to fit any chassis of approved dimensions can be constructed in numbers at comparatively short notice. And a perfected body is badly wanted to ensure complete comfort for the wounded.

It is hoped that the information obtained by the competition, and in other ways, will be published in some permanent form, available for future reference. Probably in addition to one design of special excellence, there will be submitted various ingenious suggestions which may be incorporated in the pattern design approved by the Commission. For these, a portion of the prize money has been set apart. The first prize is of one thousand pounds, the second of five hundred, and the third of three hundred pounds. All details of conditions may be obtained from the Secretary, the Ambulance Construction Commission, 10 Henrietta Street, Cavendish Square, London, W. The competition is open to citizens of all nations.

Arrangements will be made which will enable the Government and

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existing Ambulance Associations to test and at once utilize any idea or invention upon which the Commission may report favorably, and it is the intention eventually to publish in a suitable and illustrated form, under the auspices of the Wellcome Bureau of Scienific Research, such material and information as the Commission may deem worthy of being preserved as a permanent record.

ORGANIZATION OF AMERICAN PHYSICIANS FOR RELIEF OF THE BELGIAN PROFESSION.

In response to an appeal made by Dr. Charles Jacobs of Brussels for aid for civilian physicians, pharmacists and patients in devasted Belgium, a committee of American Physicians for the aid of the Belgian Profession has been organized.

It is composed of the following members:

Chairman—Franklin H. Martin, Editor of Surgery, Gynecology and Obstetrics.

Vice-Chairman—William L. Rodman, President-elect American Medical Association.

Secretary—Howard Canning Taylor, New York City, N. Y.

Treasurer—Frank F. Simpson, Pittsburgh, Pa.

Victor C. Vaughan, President American Medical Association.

John B. Murphy, President Clinical Congress of Surgeons of North America.

Charles H. Mayo, President-elect Clinical Congress of Surgeons of North America.

J. M. T. Finney, President American College of Surgeons.

J. Riddle Goffé, President The Seventh International Congress for Obstetrics and Gynecology.

George H. Simmons, Editor Journal of the American Association.

Thomas L. Stedman, Editor of Medical Record.

E. W. Taylor, Editor of Boston Medical and Surgical Journal.

Claude L. Wheeler, Editor of the New York Medical Journal.

The names of other distinguished physicians will be added to this list later. The executive committee consists of:

Dr. Franklin H. Martin, Chairman, 30 No. Michigan Boulevard, Chicago, Ill.

Dr. J. Riddle Goffe, 171 W. 71st St., New York City.

Dr. Howard Canning Taylor, Secretary, 32 West 50th Street, New York City.

Dr. Frank F. Simpson, Treasurer, 7048 Jenkins Arcade Building, Pittsburgh, Pa.

Cable inquiries have been made to learn directly from Belgium and Holland the most urgent needs of the Profession at this time.

The Commission for Relief in Belgium will deliver supplies as far as war conditions will permit, and without cost to the United States Committee for transportation and delivery in Belgium. Through the medium of the Commission for Relief in Belgium efforts have been made to standardize boxes of medical supplies for civilians and to perfect diplomatic arrangements permitting their shipment into Belgium. In order to facilitate delivery it has been arranged that all shipments by the Committee of American Physicians will be made in boxes painted *yellow*. This is in conformity with the color scheme adopted by the Commission for

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Relief in Belgium which is designed to facilitate the safe passage of articles across the seas, through the various countries they must traverse and to their ultimate destination.

All subscriptions to the fund for the aid of Belgium physicians should be sent in the form of checks or postal orders and should be made payable to Dr. Frank F. Simpson, Treasurer. They should be sent to Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa.

As many signatures are illegible all checks should be accompanied by a card giving the donor's name and address in typewriting or printing.

The Union Trust Company of Pittsburgh has been selected as the depository of the Committee. Checks will be promptly deposited and will at once be available for the purchase of supplies by the Executive Committee.

A weekly report of receipts and expenditures is made by the Treasurer to the members of the Committee and through the mdium of the medical journals to the Medical Profession as well.

The full list of names of all contributors up to and including Jan. 16, 1915, follows:

CONTRIBUTIONS.

Union Trust Company, Pittsburgh, Pa.	Banking Facilities
Sterrett & Acheson, Attys., Pittsburgh, Pa.	Professional Service
Dr. Frank Overton, Patchogue, N. Y.	$ 25.00
Dr. Franklin H. Martin, Chicago, Ill.	100.00
Dr. F. F. Simpson, Pittsburgh, Pa.	100.00
Dr. S. Peskind, Cleveland, Ohio.	25.00
Dr. and Mrs. George C. Smith, Mansfield, Ohio.	5.00
Dr. Samuel Ayers, Pittsburgh, Pa.	20.00
Dr. Edwin Walker, Evansville, Ind.	25.00
D. Boleslaw Lapowski, New York, N. Y.	10.00
Dr. Thos. E. Satterthwaite, New York, N. Y.	20.00
Dr. Thomas L. Stedman, New York, N. Y.	25.00
Dr. Richard E. Eustis, Boston, Mass.	10.00
Dr. Mark W. Richardson, Boston, Mass.	10.00
Dr. William Allen Pusey, Chicago, Ill.	25.00
Dr. M. C. Shelton, Joplin, Mo.	5.00
Dr. Henry F. Walker, New York, N. Y.	25.00
Dr. Boyd Cornick, San Angelo, Tex.	2.50
Dr. David W. Cheever, Boston, Mass.	25.00
Dr. Virgil P. Gibney, New York, N. Y.	25.00
Dr. John B. Murphy, Chicago, Ill.	100.00
Esther F. Boland, Boston, Mass.	5.00
Dr. Chauncey W. Norton, Saranac Lake, N. Y.	25.00
In Memory of H. H. C., Boston, Mass.	10.00
Dr. S. J. Meltzer, New York, N. Y.	15.00
Dr. David Bovaird, New York, N. Y.	25.00
Evelyn G. Manter, Winthrop, Me.	10.00
Dr. L. Maude Warren, Baldwinsville, Mass.	5.00
Dr. Ambrose Talbot, Kansas City, Mo.	10.00
Dr. J. G. R. Mainwaring, Flint, Mich.	25.00
Dr. James C. Thompson, Pittsburgh, Pa.	25.00
Dr. Lowell C. Frost, Hollywood, Cal	10.15
Emma T. Frost	10.15
Dr. F. W. Stetson, Boston, Mass.	10.00
Dr. Guy L. Hunner, Baltimore, Md.	25.00
Dr. George E. Lyon, Moweaqua, Ill.	5.00
Dr. Edward E. Krumbhaar, Philadelphia, Pa.	10.00
Academy of Medicine, Cincinnati, Ohio.	100.00
Dr. David S. Moore, Birmingham, Ala.	10.00
Dr. C. M. Banks, Springfield, Tenn.	1.00
Marion Co. Medical Soc., Marion, Ohio.	25.00
Dr. Henry M. Swift, Portland, Me.	10.00
Dr. E. H. Mackay, Clinton, Mass.	5.00

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Dr. R. O. Raymond, Flagstaff, Ariz.	10.00
Dr. J. H. Bertrand, DeForest, Wis.	5.00
Dr E. S. Reedy, Seattle, Wash.	5.00
Dr. and Mrs. H. C. Wetherill, Denver, Colo.	50.00
Dr. Burnley Lankford, Norfolk, Va.	3.00
Dr. Charles W. Allen, Hoboken, Pa.	5.00
Dr. William Van V. Hayes, New York, N. Y.	25.00
Drs. Parker and Parker, Peoria, Ill.	5.00
Dr. Heman B. Chase, Hyannis, Mass.	10.00
Dr. John B. Wheeler, Burlington, Vt.	25.00
Dr. Stuart McGuire, Richmond, Va.	50.00
Dr. John G. Clark, Philadelphia, Pa.	50.00
Dr. F. R. Underwood, Seattle, Wash.	5.00
Dr. Abraham Jacobi, New York, N. Y.	100.00
W. A. M., Ossining, N. Y.	2.00
Dr. Theodore C. Janeway, Baltimore, Md.	15.00
Dr. Isaac M. Heller, New York, N. Y.	5.00
Dr. S. H. Miller, Joplin, Mo.	5.00
Dr. B. F. Saylor, Redding, Cal.	10.00
Dr. J. Wolf, Pittsburgh, Pa.	10.00
Jasper Co. Medical Society, Joplin, Mo.	10.00
Dr. Sidney A. Chalfant, Pittsburgh, Pa.	10.20
Dr. Frederick Abbe, Boston, Mass.	10.00
Dr. J. Riddle Goffe, New York, N. Y.	25.00
Dr. Henry F. Graham, Brooklyn, N. Y.	5.00
Total	$1,414.00

EXPENDITURES.

450 boxes of food purchased from Austin, Nichols & Co., at $2.20 per box.	990.00
Balance	$ 424.00

Report for the Week Ending January 23, 1915.

Diplomatic arrangements have been completed whereby drugs and instruments for civilian physicians may be sent into Belgium. Recent advices from Dr. Herbert Spencer of London show that our Belgian colleagues are literally starving. Three hundred additional boxes of food have been purchased at a cost of $660.00.

CONTRIBUTIONS.

Dr. W. A. Coventry, Duluth, Minn.	$ 10.00
Dr. A. William Reggio, Boston, Mass.	25.00
Dr. Edward B. Heckel, Pittsburgh, Pa.	25.00
Dr. T. R. Williams, Punxsutawney, Pa.	10.00
Dr. J. Knox Simpson, Jacksonville, Fla.	10.00
Sonoma County Medical Society, Sebastopol, Cal.	50.00
Anonymous, E., Pittsburgh, Pa.	10.00
Dr. A. B. Hirsh, Philadelphia, Pa.	5.00
Dr. Henry Eastman, Pittsburgh, Pa.	10.00
Dr. H. S. Steensland, Syracuse, N. Y.	2.00
Washington County Medical Society, Marietta, Ohio.	25.00
Dr. Lewis S. Pilcher, Brooklyn, N. Y.	25.00
Dr. M. Iverson, Stoughton, Wis.	5.00
Dr. A. H. Traver, Albany, N. Y.	5.00
Dr. Carl B. Drake, St. Paul, Minn.	5.00
Dr. Leonard Freeman, Denver, Colo.	5.00
Dr. Howard C. Taylor, New York, N. Y.	25.00
Dr. Walter F. Donaldson, Pittsburgh, Pa.	5.00
Deer Lodge County Medical Society, Anaconda, Mont.	75.00
Dr. W. S. Zimmerman, Spartansburg, S. C.	10.00
Dr. H. MacVicker Smith, Pittsburgh, Pa.	5.00
Dr. Ethel D. Brown, New York, N. Y.	5.00
Dr. Brown Pusey, Chicago, Ill.	25.00
Total	$ 377.00

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Previously reported receipts	1,414.00
Total receipts	$1,791.00
Previously reported disbursements	$990.00
Disbursements week ending January 23	660.00
Total disbursements	1,650.00
Balance	$ 141.00

Report for the Week Ending January 30.

CONTRIBUTIONS.

Drs. C. H. and W. J. Mayo, Rochester, Minn	$ 100.00
Miss Margaret E. Reed, Chicago, Ill	1.00
Dr. E. L. Neff, Pittsburgh, Pa	5.00
Dr. F. P. Sprague, Boston, Mass	50.00
Dr. Caspar W. Miller, Wallingford, Pa	50.00
Dr. John T. Bottomley, Boston, Mass	25.00
Dr. Henry W. Frauenthal, New York, N. Y	25.00
Dr. Edwin Sternberger, New York, N. Y	10.00
Capt. W. A. Powel, M. C., U. S. A., Nogales, Ariz	5.00
Dr Frederick Fraley, Philadelphia, Pa	10.00
Dr. George W. Ely, Pittsburgh, Pa	5.00
Dr. Samuel C. Plummer, Chicago, Ill	5.00
Dr. R. W. Hodges, Baltic, Mich	10.00
Dr. Ellen A. Stone, Providence, R. I	10.00
Dr. Charles A. Elsberg, New York, N. Y	25.00
Dr. F. M. Hicks, San Antonio, Tex	10.00
Dr. Marion Marsh, Worcester, Mass	2.00
Ohio Valley Academy of Medicine, Bellevue, Pa	25.00
Dr. M. P. Messinger, Oakfield, N. Y	2.00
Total	$ 375.00
Previously reported receipts	1,791.00
Grand total	$2,166.00
Previously reported disbursements	$1,650.00
Disbursements week ending January 30	440.00
Total disbursements	2,090.00
Balance	$ 76.00

Aid for Belgian Physicians.—Dr. F. F. Simpson, Jenkins Arcade Building, Pittsburgh, Pa., treasurer of the committee of American physicians for the aid of the Belgian profession, announces for the week ended Feb. 6, 1915, the following contributions:

Dr. Willard Bartlett, St. Louis, Mo	$ 10.00
Dr. M. Manges, New York, N. Y	15.50
Dr. G. D. Hales, P. A. Surg., U. S. N., San Francisco, Cal	10.00
Dr. Alfred Wiener, New York, N. Y	10.00
Dr. John Woodman, New York, N. Y	5.00
Dr. Robert T. Frank, New York, N. Y	10.00
Cash—B, Pittsburgh, Pa	10.00
Dr. R. O. Raymond, Flagstaff, Ariz	10.00
Dr. A. Hymanson, New York, N. Y	5.00
Dr. Mazyck P. Ravenel, Columbia, Mo	15.00
Oklahoma State Medical Association, Muskogee, Okla	100.00
Dr. H. H. Sherk, Pasadena, Cal	25.00
Dr. Charles Lee King, Pasadena, Cal	20.00
Dr. James Williamson, Philadelphia, Pa	5.00
Dr. J. S. Kauffman, Blue Island, Ill	5.00
Dr. John P. Treanor, Dorchester, Mass	10.00
The Clinical Club of Albany, Albany, N. Y	25.00
Dr. Thomas J. Watkins, Chicago, Ill	50.00

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Dr. H. E. Oesterling, Wheeling, W. Va.	10.00
Dr. Leslie W. Schwab, Chicago, Ill.	2.00
Dr. A. Howard Smith, Marietta, Ohio.	5.00
Dr. Woodson H. Taulbee, Maysville, Ky.	5.00
Total	$ 362.00
Previously reported receipts	2,166.00
Grand total	$2,528.00
Previously reported disbursements	$2,090.00
Disbursements week ending February 6	440.00
Total disbursements	2,530.00
Deficit	$ 2.00

Dr. Lewis S. McMurtry, Louisville, Ky., and Dr. Charles A. L. Reed, Cincinnati, Ohio, have consented to become members of the committee of American physicians for the aid of the Belgian profession. At the request of the treasurer, the executive committee has arranged to have the accounts audited quarterly. The first audit will be about March 20.

Aid for Belgian Physicians.—Dr. Frank F. Simpson, Pittsburgh, treasurer of the committee of American physicians for the aid of the Belgian profession, calls attention in his weekly report to the devastation existent in that country:

"A recent visitor to Belgium says of the desolation there:

'No one who has not been to Belgium within the last five months can picture, can even dimly conceive that country's desolation.

'Wherever our ambulance cars went they met endless processions of refugees; endless, for the straight, flat Flemish roads are endless, and as far as your eye could see the stream of people was unbroken; endless, because the misery of Belgium is endless; the mind cannot grasp it or take it in.

'It was not flight; it was the vast, unending movement of a people crushed down by grief and weariness, pushed on by its own weight, by the ceaseless impact of its ruin.

'I saw six thousand refugees sleeping on straw in the Palais des Fetes, packed so tight on the floor of the immense hall that there was no standing room between any two of them.

'You could not believe what you saw; you were stunned as if you yourself had been crushed and numbed in the same catastrophe.'

"An American gentleman," says Dr. Simpson, "who saw the food and clothing put into the hold of the steamship *Ynorta,* which took supplies for the state of Virginia, to the Belgians, crossed the Atlantic on the ship and went into Belgium to watch the distribution of the articles among the people. He has returned and declares: First, that every pound of flour and every article of clothing sent from America by the relief commission is received by a Belgian; and second, that all who get such gifts are in direst need of them. Hunger seems to have broken down all class distinctions in Belgium.

"Captain Green of the steamship *Batiscan,* which sailed with food from Philadelphia on December 6, says that the suffering among the Belgian people cannot be exaggerated.

"Linden W. Bates, manager of the commission for relief in Belgium, states that within a few months the bread lines in Belgium will be 2,500 miles long, which would reach from New York to Salt Lake City.

"Physicians and their families have shared the common fate. Appeals

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for food, drugs and clothing are numerous and urgent. The resources of your committee have been so limited that we have not felt justified in sending anything but food to our starving colleagues. One hundred and fifty-six physicians and eleven medical societies have thus far contributed to this fund. There are approximately 142,300 physicians in the United States. If each one would contribute even a small sum, it would be possible to supply the necessary food, drugs and clothing. Do not hesitate because your check is not as large as you would like it to be. Contributions of any amount will be welcome.

"Every cent you give will be economically spent for supplies for Belgian physicians and their families. There are no charges for shipping and distribution.

"Not a cent has been spent for stenographer, stationery, stamps, etc."

For the week ending Feb. 13, 1915, the treasurer has received the following contributions:

Dr. Oswald O. Cooper, Hinton, W. Va.	$ 10.00
Dr. Franklin A. Dodge, Le Sueur, Minn.	10.00
Dr. Alfred A. Herzfeld, New York, N. Y.	10.00
Dr. Arthur W. Sieker, Plymouth, Wis.	5.00
Dr. Charles H. Cargile, Bentonville, Ark.	10.00
Dr. Albert A. Bornscheuer, Pittsburgh, Pa.	2.00
Dr. Lyn Waller Deichler, Philadelphia, Pa.	5.00
Dr. Henry T. Goodwin, New York City	5.00
Dr. Henry S. Weigle, Muncy, Pa.	5.00
Dr. James J. Keyes, Brooklyn, N. Y.	5.00
Dr. James I. Johnston, Pittsburgh, Pa.	15.00
Dr. Frederick J. Resseguie, Saratoga Springs, N. Y.	10.00
Dr. Frank H. Jackson, Houlton, Me.	5.00
Dr. Herbert L. Frost, Cleveland, O.	10.00
Dr. Philip St. L. Moncure, Norfolk, Va.	5.00
Dr. Alex. J. Braden, Duluth, Minn.	5.00
Dr. Wendell C. Phillips, New York, N. Y.	75.00
Dr. Russell S. Fowler, Brooklyn, N. Y.	25.00
Dr. John W. Farlow, Boston, Mass.	25.00
Dr. Edwin W. Link, Palestine, Tex.	10.00
Dr. Henry R. Link, Palestine, Tex.	5.00
Dr. Harold Gifford, Omaha, Neb.	100.00
Jefferson County Medical Society, Birmingham, Ala.	50.00
Dr. Edgar R. McGuire, Buffalo, N. Y.	10.00
Dr. Max Einhorn, New York, N. Y.	25.00
Dr. Joseph L. Miller, Thomas, W. Va.	10.00
Dr. David Chester Brown, Danbury, Conn.	10.00
Oshkosh Medical Club, Oshkosh, Wis.	50.00
Dr. George M. Dill, Prescott, Wis.	1.00
Camden County Medical Society, Camden, N. J.	50.00
Dr. Joseph P. Walsh, Philadelphia, Pa.	10.00
Dr. Lawrence B. Pilsbury, Lincoln, Neb.	5.00
Dr. Edward E. Montgomery, Philadelphia, Pa.	25.00
Dr. Joseph T. Clegg, Siloam Springs, Ark.	1.00
Dr. Kenneth B. Huffman, Bentonville, Ark.	1.00
Receipts for week ending February 13	$ 605.00
Previously reported receipts	2,528.00
Total receipts	$3,133.00
Previously reported disbursements	$2,530.00
Disbursements week ending February 13, 275 boxes of food at $2.20 per box	605.00
Total disbursements	3,135.00
Deficit	$ 2.00

FRANK F. SIMPSON, M. D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

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Report for the Week Ending February 20, 1915.

CONTRIBUTIONS.

Dr. Sylvester McNamara, Brooklyn, N. Y.	$ 5.00
Dr. J. Watanabe, Seattle, Wash.	5.00
Anonymous—B, Pittsburgh, Pa.	30.00
The Erie County Medical Society, Erie, Pa.	25.00
Dr. Hugh Cabot, Boston, Mass.	25.00
Dr. E. Evans, La Crosse, Wis.	10.00
Dr. W. J. Herrington, Bad Axe, Mich.	10.00
Otero County Medical Society, La Junta, Colo.	25.00
Vermilion County Medical Society, Danville, Ill.	25.00
Dr. Eva Charlotte Reid, San Francisco, Cal.	5.00
Dr. Howard Carter, Webster Groves, Mo.	5.00
Dr. G. H. Torney, Brookline, Mass.	5.00
Dr. John B. Murphy, Chicago, Ill.	100.00
Dr. D. E. McGillivray, Port Angeles, Wash.	5.00
Dr. Charles N. Spratt, Minneapolis, Minn.	100.00
Dr. J. M. Thorne, Pittsburgh, Pa.	5.00
Westerly Physicians' Association, Westerly, R. I.	10.00
Dr. J. P. Long, Chicago, Ill.	1.00
Dr. Roy Sexton, Streator, Ill.	5.00
Dr. D. E. Cornwall, St. Maries, Idaho	5.00
Aesculapian Club of Buffalo, Buffalo, N. Y.	25.00
Pocatello, Medical Society, Pocatello, Idaho	10.00
Dr. A. R. Thomas, West Eaton, N. Y.	5.00
Receipts for week ending February 20	$ 446.00
Previously reported receipts	3,133.00
Total receipts	$3,579.00
Previously reported disbursements	$3,135.00
Disbursements week ending February 20, 200 boxes food at $2.20 per box	440.00
Total disbursements	3,575.00
Balance	$ 4.00

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Obituaries

Lieutenant Waldemar Edward Fischer, M. R. C., U. S. A., died in St. Louis, December 9, 1914. Dr. Fischer was a graduate of the Marion Simms College of Medicine, St. Louis, in 1888, a Fellow of the American Medical Association, was formerly assistant to the eye clinic in his alma mater and oculist to the Missouri Baptist Sanitarium, St. Louis. He was a well known ophthalmologist of St. Louis and is said to have died by suicide while mentally irresponsible and haunted by the fear that he was losing his mind.

Brigadier General William Henry Rowe, Surgeon General of Minnesota, an active member of the Association, died in the St. James Hospital and Sanitarium, St. James, Minn., February 4, from nephritis, aged 56.

He was born in Madison, Wis., July 4, 1858, the son of Richard W. and Martha M. Laselle Rowe. His preliminary education was obtained in the common schools and academy of Madison and he attended the University of Wisconsin for two years.

He had been for several terms mayor and a member of the city council and a member and president of the Board of Education of St. James, also coroner and county physician of Watonwan County, and vice-president of the State Board of Health.

His medical course was taken at Rush Medical College, Chicago, from which he was graduated with degree of M. D. in 1882. His society membership included the American Medical Association, Minnesota State Medical Society, Watonwan County Medical Society, Southwestern Minnesota Medical Society, and he had served as president of the Minnesota Valley Medical Association.

His military service began in 1896 when he was commissioned Lieutenant and Assistant Surgeon in the National Guard of Minnesota. During the Spanish-American war he was Lieutenant and Assistant Surgeon U. S. V., assigned to the Twelfth Minnesota Volunteer Infantry and at Chickamauga Park and at Lexington served on the staff of the Third Division Hospital. Later he was made Major and Surgeon of the Second Infantry, Minnesota National Guard. He was appointed Surgeon General by Governor Eberhart July 22, 1910, and was continued in that position by Governor Johnson.

General Rowe was the founder and president of the St. James Hospital and was one of the best known and most prominent citizens of Minnesota. In all his work in professional life, in politics and in the National Guard, he performed well his part and bore an honorable name. Those members of the Association who were at the Denver meeting will remember with pleasure General Rowe's interested participation in the proceedings. His death is a personal loss to the members of the Association.

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The Military Surgeon

VOL. XXXVI. APRIL, 1915 NUMBER 4

Original Articles

Authors alone are responsible for the opinions expressed in their contributions

A Guide to Facilitate the Organization and Administration of Independent Sanitary Commands in the Field

Prepared in the Office of Evacuation Hospital No. 1, Galveston, Tex., Under the Direction of Major A. E. Truby, Medical Corps, U. S. Army.

BY GEORGE P. PEED, CAPTAIN MEDICAL CORPS, U. S. ARMY.

(*Continued from March issue*)

REPORTS, RECORDS, ETC., PREPARED IN THE RECORD OFFICE.

DAILY:

(1) Form 82. *Daily Field Return of Sanitary Personnel and Transportation.*—One copy to Surgeon, Medical Base Group; one retained. The data for the preparation of this report will be furnished by Company and Detachment Morning Reports, and report of Quartermaster. (To be rendered whenever any change occurs regarding transportation.)

(2) Form 83. *Daily Field Report of Patients.*—One copy to Surgeon, Medical Base Group; one retained. Date for preparation obtained from Morning Reports from wards and Surgeon's Morning Report of Sick of Command. Care should be taken to avoid counting sick of command in the hospital from both above sources.

(3) Notification of detail for duty as Officer of the Day.

(4) Diagnosis tags found on wounded to be sent to Surgeon, Medical Base Group.

TRIMONTHLY:

(1) Form 223. *Q. M. C. Ration Returns.* (Prepared by Company and Detachment Commanders.) To be checked with morning reports and afterward submitted to Commanding Officer for approval. One copy to Quartermaster.

(2) Form 18, A. G. O. *Trimonthly Report of Enlistments.*—See "Recruiting Officer."

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(3) Form 26, A. G. O. *Field Return.*—One copy to Commanding Officer, Line of Communication; one retained.

MONTHLY:

(1) *Personal Report of Medical Officers,* on information slip. Two to Surgeon General through Surgeon, Medical Base Group; one retained.

(2) Forms 28 and 28a (pages 1 and 2, Q. M. C.). *Payrolls.*—Two to Paymaster; one retained. To be prepared for patients in the hospital, not belonging to the Hospital Company or other detachments on duty at the hospital. For preparation of payrolls see "Model Remarks for Payrolls," Form 69, Q. M. C.; "Model Payroll," Form 28b, Q. M. C., Pay Department, and "Instructions for Payroll," Form 70, Q. M. C.

(3) Forms 51, 51a, 52, M. D. *Report of Sick and Wounded.*—To Surgeon General, through Surgeon, Medical Base Group, by the fifth of the following month. Transfer cards received are also sent with this report.

(4) Form 50, M. D. *Sanitary Report.*—One copy to Commanding Officer; one retained in Medical History of the Post. During an epidemic the following will be noted on this report, viz.: Progress, decline, origin or importation, methods of treatment employed, measures taken for its suppression, number of cases, number of deaths and recoveries and other important information.

(5) Form 265, A. G. O. *Report of Medical Examination of Applicants for Enlistment.* See "Recruiting Officer."

(6) Form 59, A. G. O. *Report of Trials by Summary Court.* To Commander of Line of Communication.

(7) Form 3, Q. M. C. *Voucher to Abstract of Expenditures.*

BIMONTHLY:

(1) Forms 21, 61-1, A. G. O. *Muster Roll Soldiers Sick in Hospital from Other Commands.*—One copy forwarded; one retained. The names of men of different regiments and branches of the service will not be borne on the same roll. A separate roll is required for each regiment, and each company and band of the C. A. C. See "Instructions for the Preparation of Muster Rolls" on Form 21, A. G. O., and "Model Remarks for Muster Rolls," Form 489, A. G. O.

ANNUALLY:

(1) *Efficiency Report of Officers.*—Par. 829, A. R., Form 429, A. G. O.

(2) Form 58, M. D. *Report of Operations.*—One copy to Surgeon General, through Surgeon, Medical Base Group, Line of Communication.

OCCASIONAL:

(1) *Epidemic Disease, Report of Appearance.*—Letter to Surgeon, Medical Base Group, stating nature and extent of disease, also measures taken to prevent spread of infection. One copy to Surgeon General, one copy to local Board of Health, and one filed in Medical History of Post.

(2) Form 415, A. G. O. *Report of Death.*—See "Reports of Death of Officers" and "Reports of Death of Soldiers."

(3) *Report of Change of Status of Medical Officers.*—On information slip, three copies; two to Surgeon General, through Surgeon, Medical Base Group; one retained. Form 68, M. D.

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(4) *Report of Change of Status, Hospital Corps.*—Two to Surgeon General, through Surgeon, Medical Base Group; one retained. See Par. 35, M. M. D.

(5) Form 22, A. G. O. *Enlistment Papers.*—One copy to Adjutant General's Office. See "Recruiting Officer."

(6) Form 135, A. G. O. *Report of Physical Examination of Recruits.*—See "Recruiting Officer."

(7) Forms 260 and 261, A. G. O. *Identification Record.*—See "Recruiting Officer."

(8) Form 380, A. G. O. *Designation Card.*—See "Recruiting Officer."

(9) Form 25, A. G. O. *Descriptive and Assignment Card.*—On receipt of D. & A. Card it will be completed and forwarded to the Adjutant General's Office. A copy will be prepared and sent to the Surgeon General; a copy to the Company Commander, and one copy will be retained.

(10) Form 29, A. G. O. *Descriptive Lists.*—To be forwarded to the station to which the soldier is sent.

(11) Forms 38 and 39, Q. M. C. *Allotment and Discontinuance of Allotment.*—To Quartermaster General. Copy retained in allotment blank book. See Allotment of Pay and Discontinuance of Allotment.

(12) a. Letter to Commanding Officer reporting Soldiers' Deposits, forwarded by Organization Commanders; to be sent with payrolls to the Quartermaster who is to make the payment, when required.

b. Form 8a, Q. M. C. *List of Soldiers' Deposits.*—To Quartermaster General after each regular payment.

c. *Report of Transfer or Desertion* of soldier having deposits, to Quartermaster General, by letter.

(13) Form 15, A. G. O. *Statement of Service.*—To accompany charges against an enlisted man for trial by court-martial. See "General Courts Martial."

(14) Form 66, A. G. O. *Furloughs.* One copy to the soldier to whom the furlough is granted. Article of War 11 provides for the granting of furloughs as follows: "Every officer commanding a regiment or an independent troop, battery or company in the field, may grant furloughs not exceeding thirty days at one time to 5 per cent of the enlisted men, for good conduct in the line of duty, but subject to the approval of the Commander of the forces of which said enlisted men form a part.

(15) Form 17, A. G. O. *Certificates of Disability.*—One to be prepared by immediate commander, who will send it to the Surgeon. The Surgeon fills in the required spaces and forwards it to the Commanding Officer. After critical examination of the certificates the Commanding Officer forwards them, with the proceedings of a Board of Medical Officers, through military channels to the Adjutant General's Office. Should the soldier be ordered discharged by the proper authority the Commanding officer will sign the soldier's discharge certificate and the last indorsement on the Certificate of Disability; see that the soldier is furnished with final statements, and forward the certificate of disability to the Adjutant General of the Army.

(16) Forms 19, 20 and 203, A. G. O. *Discharge Certificates.*—To soldiers upon discharge. See "Discharge of Soldier."

(17) Form 16, Q. M. C. *Final Statements.*—Are made in duplicate. Both copies to soldier upon discharge or retirement, and to the Adjutant General in case of death.

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(18) Form 49a, M. D. *Certificate of Indebtedness.*—Three copies, one marked original, one marked duplicate, and one marked triplicate. A. R. 1461.

(19) Form 87, A. G. O. *Report of Desertion.*—See "Desertion."

(20) *Charges for General Courts Martial.*—See "General Courts Martial."

(21) *Charges, Special Court.*—To be forwarded by reviewing authority upon completion to A. G. O. See "Special Courts."

(22) Form 99, A. G. O. *Record of Summary Court.*—Original to be filed alphabetically; duplicate to Company Commander. See "Report of Trials," monthly.

(23) *Requisitions for Blank Forms.*—Form 37, M. D. and Form 383, A. G. O.

(24) *Letter to Company Commanders* (when practicable) of admission to and discharge from hospital of men of their commands.

(25) *Notification and Brief History* of each case, of admission, transfer from, or death in hospital of prisoners of war, to be sent to the Inquiry Office for Prisoners of War.

LIST OF RETAINED RECORDS.

(1) *Medical History of the Post.*—The duplicates of Sanitary Reports, with official indorsements, and report sheets of Sick and Wounded will be filed chronologically in the Medical History of the Post. Additional sheets, 13x18 inches, for noting the occurrence of epidemic diseases and other data, will be inserted in the proper places. (M. M. D., Par. 472.)

(2) *Correspondence.*—1. Document File. 2. Correspondence Book. Correspondence pertaining to all departments of the hospital will be recorded in the record office. Instructions for filing and recording communications are posted in the correspondence book. 3. Letters and Indorsements. See "Method for Writing Letters and Indorsements."

(3) *Orders and Memorandums of Hospital.*

(4) *Orders and Bulletins, War Department.*

(5) *Orders of Commanding Officer, Line of Communication.*

(6) *Circulars of Instruction, Surgeon General's Office.*

(7) *Circulars of Instruction, Surgeon, Medical Base Group.*

(8) *Record of Typhoid Prophylaxis.* G. O. 134, 1911.

(9) *Record of Venereal Prophylaxis.*—G. O. 71, 1913, W. D., Paragraph 3.

(10) *Record of Bimonthly Physical Inspection.*—G. O. 17, W. D., 1912.

(11) *Retained Payrolls.*

(12) *Retained Muster Rolls.*

(13) *Retained Return H. C.*

(14) *Report of Operations.*

(15) *D. & A. Cards.*

(16) *Register of Sick and Wounded.*—Forms 51a, 52, 52a, M. D. (Form 51 is filed in Medical History of the Post.)

(a) File of Register Cards (copies of Report Cards) kept in numerical sequence.

(b) File of Index Cards which form an alphabetical index to the file of Register Cards.

(c) File of Nominal Check List which gives the register number, name, rank and organization of all men on sick report for an entire month.

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(d) Reports of Sick and Wounded. Form 51, M. D., are kept in the Medical History of the Post.

(17) *Descriptive Lists.*—Descriptive Lists are kept in three files.

(a) Live File. Incompleted D/Ls of all men present for duty.

(b) Dead File. 1. Old D/Ls of all men present for duty.

(c) Dead File. 2. Completed D/Ls of me ntransferred, discharged, died, etc.

All D/Ls to be kept in alphabetical orders.

(18) *Allotments and Discontinuance of Allotment.*

(19) *File of Clinical Records* (Completed).

(20) *Roster of Officer of the Day.*

(21) *Deposit Books.* Form 41, Q. M. C.

(22) *Report of Desertions.* Stub Form 87, A. G. O.

(23) *Want Book.*

(24) *File of Records of General Courts Martial.* (Orders publishing the cases.)

(25) *File of Records of Special Courts Martial.* (Orders publishing the cases.)

(26) *File of Records of Summary Court.*

(27) *File of Officer's Personal Reports.*

(28) *File of Soldier's Individual Record.* Form 442, Q. M. C., Document File Jackets are used for this purpose. An envelope is provided for each man's individual record as soon as he has reported for duty.

The following notations are made on face of envelope:

First Line—Surname; Christian name.
Second Line—Rank.
Third Line—Date of enlistment.
Fourth Line—Enlistment period.

Under "Remarks" shall be placed any information to be used in the preparation of Payrolls, Muster Rolls or the Return of the Hospital Corps, Allotments, Special Qualications, etc.

All papers pertaining to each man will be placed in the envelope.

(29) *Retained Stubs of Telegrams Sent.* Form 406, Q. M. C.

(30) *Diary,* daily.

COMPANY OFFICE.

Reports and records prepared under the direction of the Company Commander.

DAILY:

(1) Morning Report of Company (Form 332, A. G. O.)

(2) Morning Sick Report of Company (Form 339, A. G. O.). Both to be sent to the Record Office daily. They are returned to Company Office after the necessary data is obtained.

TRIMONTHLY:

Ration Returns (Form 223, Q. M. C.). One copy to Record Office.

MONTHLY:

(1) Payrolls (Form 28, Q. M. C.). See Payrolls under "Record Office."

(2) Advice of Soldier's Deposits (Form 8a, Q. M. C.).

(3) Return of the Hospital Corps (Form 47a, M. D.). One to the

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Commanding Officer and one retained. For preparation see "Instructions" on the Form.

BIMONTHLY:

(1) Muster Rolls (Form 21, A. G. O.). See Record Office. To the Commanding Officer.

(2) Return of the Hospital Corps (Form 47, M. D.). For preparation see "Instructions" on the Form. To the Commanding Officer.

OCCASIONALLY:

(1) Descriptive Lists (Form 29, A. G. O.). See "Record Office."

(2) D. & A. Cards (Form 25, A. G. O.). See "Record Office."

(3) Report of Change of Status of Hospital Corps Men, Par. 35, M. M. D., Information Slips. Two to Surgeon General through the Commaning Officer; one retained, to be filed with soldier's individual record.

(4) Charges, Summary Court, Special Court and General Court. See "Record Office." To the Commanding Officer.

(5) Report of Death of Enlisted Man. See "Record Office."

(6) Allotment and Discontinuance of Allotment. See "Record Office."

(7) Letter to Commanding Officer reporting soldier's deposits when required only.

(8) Report of Transfer or Desertion of soldier having deposits. To Q. M. G.

(9) Statement of Services (Form 15, A. G. O.). See "Record Office."

(10) Furloughs. See "Record Office." To Commanding Officer.

(11) Certificates of Disability. See "Record Office." To the Surgeon.

(12) Discharge Certificates. See "Record Office." To Commanding Officer for signature.

(13) Final Statements. See "Record Office."

(14) Statement of sizes of various garments worn by enlisted men. To the Quartermaster when called for. Par. 1153, A. R.

(15) Requisition for Clothing (Forms 213 and 213a, Q. M. C.). Made in duplicate. A. R. 1146 to 1174. To Commanding Officer.

RETAINED RECORDS:

(1) Payrolls.
(2) Return of the Hospital Corps.
(3) Muster Rolls.
(4) Deposit Books (Form 41, Q. M. C.).
(5) Individual Record of Men. See "Record Office."
(6) Record of Sizes of Clothing of Men. G. O. 26, W. D., 1912.
(7) Company Punishment Book.
(8) Good Conduct Book.
(9) Record of Instruction and Class Standing.
(10) Duty Roster.

(11) File of Records of Court-Martial. This includes true copies of records of summary courts and orders promulgating sentences of general and special courts.

(12) Allotment and Discontinuance of Allotment Book. (Forms 38 and 39, Q. M. C.)

(13) Table of Price of Clothing and Equipment. Circular of the Office of the Q. M. G.

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(14) Retained Requisitions for Clothing. (Upper half of Form 213, Q. M. C.).

(15) Detailed Statement of Clothing. (Forms 165, 165a and 165b, Q. M. C.). Live File.

(16) Detailed Statement of Clothing. Dead File, for slips of soldiers whose services have terminated. Issues to individuals will be made at once by the Company or Detachment Commander or other commissioned officer representing him. The transactions will be recorded on the "Detailed Statements" and on the Descriptive Lists. The latter will show signatures of the soldier and witnessing officer. A. R. 1146, 1174.

MESS OFFICE.

Under the direction of the Mess Officer.

REPORTS:

Hospital Fund Statement (Form 49, M. D.). One copy to Surgeon General through Surgeon, Medical Base Group, with all vouchers pertaining to the statement. One copy retained.

RECORDS:

File of Hospital Fund Statements with vouchers which have been returned by the S. M. B. G.

DAILY MESS STATEMENT (Form 74, M. D.).

Council to audit Hospital Fund. Council to consist of three senior officers on duty at the hospital, or as many as are available if less than three. The proceedings of Council to audit Hospital Fund to be recorded on the retained monthly statement Form 49, M. D.

RECRUITING OFFICER.

The following reports and records will be prepared under the direction of the Recruiting Officer.

Trimonthly Report of Enlistments (Form 18, A. G. O.). One to A. G. O. and one retained. To be forwarded on the 11th, 21st and 1st day of each month. Enlistment papers for the period covered shall be forward with these papers.

Monthly Report of Medical Examination of Applicants for Enlistment (Form 265, A. G. O.). One to A. G. O., one retained.

Occasional Enlistment Papers (Form 22, A. G. O.). One copy to A. G. O. with Form 18, A. G. O.

Report of Physical Examination of Recruit (Form 135, A. G. O.). One copy to A. G. O., to be sent when completed. See Circular No. 1, War Dept., 1914.

Identification Record (Forms 260 and 261, A. G. O.). To A. G. O. when completed. (Usually impracticable to prepare in the field.) Circulars 51, W. D., 1908, 79, W. D., 1901.

Designation Card (Form 380, A. G. O.). To A. G. O. when completed.

Descriptive and Assignment Card (Form 25, A. G. O.). To be prepared in quadruplicate for Hospital Corps men, in duplicate for other branches, on enlistment or re-enlistment. All copies to the Record Office.

The fact, date and place of re-enlistment will be noted on last discharge certificate.

The warrant of a Post N. C. S. Officer will continue in force if he re-enlists the day following his discharge, and the Recruiting Officer

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will note on the back of warrant as follows: "Re-enlisted .....(*date*) ....., warrant continued. (For other Non-Commissioned Officers the above notation will be made as follows: General N. C. S., by Detachment or Company Commander; Regimental N. C. S., by Adjutant; Company N. C. O., by Company Commander; Coast Artillery Corps N. C. S., Commanding Officer of Coast Defense.)

Typhoid prophylactic will be administered to all recruits under forty-five years of age who have not been subjected to the prophylaxis within two years. It will also be given to soldiers on re-enlistment who have not had the prophylaxis for two years or who have not had typhoid fever. G. O. 54, 1911.

Vaccination: All men will be vaccinated unless recently protected.

HOSPITAL EXCHANGE.

As Army Regulations provide only for post exchanges, the following indorsement will be authority for the establishment of hospital exchanges:

16353-A 4th Ind. BHS.

War Dept., O. I. G., Sept. 26, 1914. To the A. G.:

1. Regimental or company exchanges for organizations in the field were authorized on June 19, 1913, by the War Department's approval of the following opinion of the Judge Advocate General:
(27th Ind., 2048094, A. G. O.; 15592-D, O. I. G.):

The regimental and company exchanges can, therefore, it is believed, be very properly looked upon as nothing more or less than an extension of post exchanges to meet the necessities of the service and while not specifically recognized under the regulations by name, to be nevertheless authorized under the general authority for the establishment maintenance, etc., of post exchanges, and hence in a like manner and for similar purposes to be govenmental agencies.

2. The purposes of a company exchange in the field are more limited, and the operation is on a much smaller scale, than the post exchange. However, the general principles laid down in the regulation should govern whenever they can be applied, to the end that a clear accounting of all transactions of the exchange can be made.

3. It is believed that paragraph 328, A. R., covers the case.

E. A. GARLINGTON, *Inspector General.*

The following order is of importance in administering the exchange:

G. O. 176, 1909.

The Hospital Exchange Council shall consist of the Exchange Officer and two other officers appointed by the Commanding Officer, in the form of an order as follows:

HOSPITAL ORDER

No. .. Evacuation Hospital No. ..

1. An Exchange Council of administration will convene at Evacuation Hospital No. .., ...(*place*)....., ...(*state*)....., on the last day of each month, or as soon thereafter as practicable, and at the call of the president, for the purpose of auditing the accounts of the Exchange, Evacuation Hospital No. .., ...(*place*)...., ...(*state*).....

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2. Detail for the Council:

Major .....(*name*)....., ...(*organization*).....
Captain .....(*name*)....., ...(*organization*).....
Captain .....(*name*)....., ...(*organization*).....

By Order of Major .....(*name*).....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

The books to be kept are such as will show all details of the business, and enable the Exchange Officer to render the necessary reports. Those used by most exchanges are ledger, cash book, journal and stock book.

The proceedings of the Council should be similar to the following:

PROCEEDINGS OF AN EXCHANGE COUNCIL.

Which met at .....(*place*)....., ...(*state*)....., (Exchange of Evac. Hosp. No. ..).

The Council met at ....., ...M....., ...(*date*)....., at the call of the President.

Present: All members.

The Council then proceeded to examine the books of the Exchange and Inventory of stock on hand. Captain .....(*name*)....., Med. Corps, having been designated as auditing officer, proceeded to audit the accounts of the Exchange and found them as follows:

STATEMENT OF THE EXCHANGE FOR THE MONTH OF ....., 1914.

Receipts		*Expenditures.*	
Cash rec'd in store.....	$....	By cash from mdse.....	$....
Cash rec'd on per a/c.....	....	Fixtures	....
Cash rec'd from barber shop.	....	Operating expenses.....	....
Cash rec'd enl. men's a/c.....	....	Dividends and Donations.....	....
		Balance cash on hand.....	....
Total	$....	Total	$....

CONDITION OF EXCHANGE ON .....(*date*)....., 1914.

Assets.		*Liabilities.*	
Balance cash on hand.....	$....	Due on mdse.....	$....
Value of stock as per invoice.	....	Due on operating expenses...	....
Value fixtures as per invoice.	....	Due on fixtures.....	....
Due on bills received (coupon books)	....	Outstanding on books.....	....
Due on bills received (personal account)	....	Balance assets	....
Total	$....	Total	$....

Balance assets for the month of .....$.....
Net profit .....

I certify that I have audited the above accounts and counted the cash on hand and found them correct.

.....(*name*).....
Captain, Medical Corps,
Auditing Officer.

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I certify that the Balance Cash on Hand is accounted for as follows:

On deposit in First National Bank.....$.....
In my personal possession.....$.....

Total .....$.....

.....(*name*).....
Captain, Medical Corps,
Exchange Officer.

The Council then decided to declare a dividend of $.....

The Council then recommended that:

The subcommittee of Non-Commissioned Officers then appeared before the Council and recommended:

There being no further business before it the Council adjourned sine die.

.....(*name*).....
Major, Med. Corps, U. S. A.,
President.

.....(*name*).....
Major, Med. Corps, U. S. A.,
Recorder.

.....(*station*).....,
.....(*date*)....., 191..

Memoranda for procedure in case of death, discharge, desertion and allotments.

REPORTS OF DEATH OF AN OFFICER.

(1) Telegram to adjuatant general.
(2) Telegram to division commander.
(3) Telegram to brigade commander.
(4) In the field only one telegram would probably be required, and sent to the commander of line of communication.

Information given in telegrams: Name, place, cause, day and hour, whether or not cause of death was contracted in line of duty, and whether or not the death was from wounds or disease the result of his own misconduct.

(5) Telegram to nearest relative if death occurs in Alaska or United States in reference to shipment of body.

Form for telegram will be as follows:

"To.....nearest relative, ... address, ...rank, ...name, ...organization, died at this hospital .....(date). Telegraph if you desire remains shipped at government expense. If shipment is desired designate destination and to whom the remains are to be consigned.

.....
Surgeon.

The consignee will be notified by telegram of the shipment of the remains.

(6) Form 415, A. G. O. This form will also show whether or not the disease or injury was contracted in line of duty, and whether or not the result of his own misconduct.

(7) Letter to Company Commander through Regimental Commander containing same information as Form 415.

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(8) Information slip direct to Surgeon, Medical Base Group. Same information as Form 415.

(9) Information slip direct to Surgeon. Same information as Form 415. (8 and 9, only in case of death of Medical Officer.)

(10) Letter to nearest relative enclosing list of effects.

(11) Inventory of effects, in duplicate, to A. G. O.; A. W. 125. Prepared and sent by the officer second in command of Hospital.

(12) Board of Officers. A. R., Par. 86. (Hospital Order) Board appointed to inventory funds and public property of diseased officer.

(13) Officer designated to take charge of public property or funds of diseased officer. (Hospital Order) A. R., Par. 86.

REPORTS OF THE DEATH OF AN ENLISTED MAN.

(1) Telegram to nearest relative if death occurs in the United States or Alaska in reference to shipment of body. (See Report of Death of an Officer, Par. 5.)

(2) Letter to Company Commander through Regimental Commander. This communication will show whether or not the disease or injury was contracted in line of duty, and whether or not the result of his own misconduct.

(3) Letter to Company Commander requesting descriptive list, if it has not been received. Form 29, A. G. O.

(4) Form 415, A. G. O. (See Report of Death of an Officer, Par. 6.)

(5) Information slip to Surgeon, Medical Base Group and Surgeon General. (Only in case of death of Hospital Corps Man.)

(6) Letter to the Quartermaster General if the soldier had made an allotment.

(7) Inventory of effects, in duplicate, accompanied by a final statement, and certificate of attending surgeon, giving name, organization, cause and date of death, whether or not the disease or injury was contracted in line of duty, and whether or not it was due to his own misconduct. Sent to the Adjutant General by the soldier's immediate commander. The inventory will be made by the immediate commander in the presence of two other officers. 126 A. W.

(8) Letter to nearest relative enclosing list of effects. The letter will state the fact of death and cause of death and information will be requested as to whether or not the effects are to be sold, or shipped to the legal representative. If the effects are to be shipped, a receipt in duplicate, with the necessary amount of money to pay for shipment will be sent by the legal representative. Jewelry, personal letters, and trinkets will not be sold, but labeled with name, rank and organization of owner, and sent directly to the Adjutant General of the Army as registered mail.

In foreign countries on account of existing conditions a letter similar to the following will be sent:

"To Mr.....

"It is with deep regret that I have to inform you of the death of Private....., Co....., Regiment....., which occurred at this hospital, ...(*date*).....,, the result of ..... (*diagnosis*)....., incurred at..... A list of his effects are herewith enclosed.

"The following articles of his effects will be sent to the Adjutant

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General of the Army to be forwarded to the Auditor of the War Department. All other articles will be sold by a council of administration without waiting for a reply to this letter, as the length of time that would be necessary to receive it is considered too long under the existing conditions.

"Application for effects, arrears of pay and proceeds of sale of effects should be addressed to the Auditor of the War Department, Washington, D. C.

"Very truly."

(9) When effects are to be sold the Commanding Officer directs that the effects and inventory of same be turned over to the Council of Administration.

After due advertisement of the sale, the different articles are sold separately at auction, and the proceeds, inventory and proceedings of the council are then turned over to the immediate commander of the soldier. The immediate commander deposits the proceeds with the Quartermaster and obtains a receipt for the same, and forwards the receipt with the proceedings of the council to the Adjutant General of the Army.

(10) Form of proceedings of the Council:

Proceedings of a Council of Administration convened at Evacuation Hospital No. ...., ...(*place*)....., pursuant to the following order: (See H. O. No. 15.)

Evacuation Hospital No. .....
....., ..., 1914.

The Council met at 9 o'clock A. M. this date, pursuant to the foregoing order.

Present: All the members.

The Council proceeded to examine the inventory of effects of Private....., deceased, and found all articles enumerated thereon present.

The effects were then sold at auction, as follows:

1 O. D. shirt	$0.50
2 pair leggings	.20
2 pair shoes	1.00
Total	$1.70

The amount was turned over to Capt. ....., who was the soldier's immediate commander, receipt for which is hereto attached.

There being no further business, the Council adjourned sine die.

.....
Captain, Medical Corps,
President.

.....
1st. Lt., Medical Corps,
Member.

.....
1st. Lt., Medical Corps,
Recorder.

APPROVED:

.....
Major, Medical Corps,
Commanding.

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Evacuation Hospital No. ....,
...(*place*)..., ...(*date*)....

Received $1.70, being in full the amount realized from the sale of the effects of Private .....(*name*)....., deceased.

.....
Captain, Medical Corps.

The indorsement will be as follows: Report of the proceeds of the effects of ....., who died ....., at Evacuation Hospital No. ...., ...(*place*)....., the ..... day of .....

(11) During active campaign when the efforts of the entire personnel of the Hospital are overtaxed, and the Hospital is being advanced in location every few days, it will be impossible to comply with all of the above instructions pertaining to diseased soldiers.

DISCHARGE OF SOLDIERS. A. R. AND CHANGES. 139 TO 161.

(1) Discharge certificate given to soldier.

(2) Final statement, in duplicate given to soldier.

(3) Notation of discharge on muster roll: See "Instructions for preparation of Muster Rolls." 2 (K), Form 21, A. G. O.

(4) Request for discontinuance of allotment. To Q. M. G. (Form 39).

(5) In case of Hospital Corps man: Information Slip to Surgeon General, and Surgeon Medical Base Group showing character, objections to re-enlistment if any, otherwise the fact that there are none, physical condition, single or married, mail address, and other pertinent information. (M. M. D. 35.)

(6) Notation on Morning Report of Personnel.

(7) In case of Hospital Corps men: Notation on Return of the Hospital Corps.

(8) Notification to Quartermaster (Form 3, A. G. O.). Furnished only in case of an enlisted man discharged at a place at which there is no available officer provided with funds to make payment on final statement. Par. 155, A. R.

(9) Descriptive List completed, signed and placed in dead file of Descriptive Lists.

(10) The different forms of discharge are:

1. Honorable Discharge. Form 203, A. G. O. Prepared by the organization commander and signed by the commanding officer. (To the soldier.) "Character" will be at least good. If in the opinion of the organization commander a soldier is not entitled to service honest and faithful on his discharge certificate, he will notify the soldier thirty days before discharge and at the same time notify the commanding officer, who will convene a board of officers, three if practicable, to investigate and report on the case. The finding of the Board when approved by the convening authority is final. When an honorable discharge is recommended by the Board the fact will be noted on the discharge and on the muster rolls. The proceedings of such Boards showing all facts pertinent to the inquiry will be forwarded by the reviewing authority direct to the Adjutant General's office.

2. Discharge. (Form 19, A. G. O.) On the approved findings of a board of officers that the soldier's service has not been honest and

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faithful, the proceedings of the Board will be sent to the Adjutant General's office, as above.

By direction of the President or Secretary of War:

(a) Without trial on account of fraudulent enlistment.

(b) Without trial on account of having become disqualified for service physically, or in character, through his own misconduct.

By direction of the Commander of a Territorial Department or Mobilized Division:

(a) On account of imprisonment under sentence of a civil court.

3. Dishonorable Discharge. (Form 20, A. G. O.) By sentence of a General Court.

DESERTION.

(Par. 116-123, A. R.)

(1) Telegram to A. G. O., giving name, rank, organization and dates of desertion and enlistment.

(2) Form 87, A. G. O., sent direct to A. G. O.; stub copy retained.

(3) Notification to company commander if the deserter belongs to another post.

(4) Report by letter to Quartermaster General, in case the deserter has deposits.

(5) Request for discontinuance of allotment to Q. M. G., Form 39.

(6) Form 118, A. G. O. Descriptive Lists of Deserters. To be sent to such police officers, sheriffs and marshals as the commanding officer may deem proper.

(7) Information slip to Surgeon General and S. M. B. G., if deserter is a member of the Hospital Corps.

(8) Notation on Muster Rolls. See Form 21, A. G. O., Par. 3.

(9) Notation on Return of the Hospital Corps.

(10) Notation on morning report of the personnel.

(11) Property left by a man absent without permission should be checked over as soon as he absents himself without leave. As soon as a man is dropped as a deserter, all missing government property for which he is responsible will be submitted for the action of a surveying officer.

(12) Uniform clothing to be turned over to Quartermaster with certificate showing its condition, and name of deserter.

(13) All other effects to be sold by a Council of Administration, and money deposited with Quartermaster.

(14) Descriptive list completed, signed, and placed in dead file.

All charges of desertion will be forwarded with proper recommendation by the post commander, who, in making such recommendation, will take into consideration: Length of service, and experience of the accused; the circumstances under which the accused came under military control; the impression he makes upon the investigating officer; any other matter which would indicate the desirability or undesirability of retaining the man in the service.

ALLOTMENTS OF PAY AND DISCONTINUANCES OF ALLOTMENT.

Forms 38 and 39, Q. M. C.

(1) One copy to Quartermaster General; Duplicate to be retained. The Quartermaster General will make acknowledgment of receipt of the notification.

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(2) If a bank is designated as allottee, the soldier's Detachment Commander will furnish to the bank the soldier's signature, and amount and period of allotment.

(3) Request for discontinuance of allotment sent to Quartermaster General.

(a) When the forfeiture by sentence of Court Martial cannot be stopped in full prior to discharge of the soldier if the allotment is continued.

(b) When due to reduction, to stoppage for clothing overdrawn, to continued misconduct, or to any reason the soldier's available pay will not warrant the continuance of the allotment.

(c) On account of death, discharge, or desertion of the grantor of an allotment.

(d) When the grantor desires it discontinued. The stoppage of pay to meet the allotment should continue until the receipt of acknowledgment of request for discontinuance. The Quartermaster General will notify the soldier's immediate commander of the fact of discontinuance of payment to the allottee and the last month's allotment paid.

(4) Report to Quartermaster General of the transfer of a soldier whose period of allotment continues.

(5) Date, period, amount and discontinuance of allotment to be entered on payrolls. The allotment of a soldier captured by the enemy will be continued until otherwise ordered by the Secreary of War.

QUARTERMASTER'S OFFICE.

Report, Daily: Notification of any change regarding transportation. To Record Office.

Property Account: See Instructions, Circular 38, O. C. Q. O., 1913.

Form 200, Q. M. C., and looseleaf binder for holding the forms. A separate sheet will be provided for each article.

The property will be arranged under the following groups: (a) Clothing; (b) Equipage; (c) Other Quartermaster stores.

To inaugurate the property account:

(a) Enter on Form 200 the names of the articles, using a separate sheet for each particular article. The sheets are filed in alphabetical order.

(b) On the first horizontal line enter the date on which transfer is made from the old account; in columns 2 and 3 write the words "On hand," and on same line in column 4, enter the quantity of the articles under consideration on hand at the time transfer to the new account is made.

(c) In columns 6 and 7, enter the quantities of the article serviceable and unserviceable, respectively.

The transactions to a property account are supported by proper vouchers, which will be numbered serially from the first day of each fiscal year, or the date on which the property account is first opened, to and including the 30th of June of the fiscal year.

The Debit Vouchers are: Form 201, invoice of property transferred; Form 210, list of articles received from various sources.

Credit Vouchers:

Form 45. Account of sales at auction.

Form 201. Receipt for property.

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Form 203. Monthly list of stores expended.

Form 204. Requisition for stationery to be filed with retained form 203.

Form 205. Articles Lost or Destroyed: This form to be supported by one or more affidavits per A. R. 683-691.

Form 208. Statement of Charges on Muster and Payrolls. Report of Survey to accompany this statement when charges are entered against a deserter or when enlisted men are held responsible for loss of property. A. R. 685-687.

Form 213. Requisition for clothing and equipage.

Form 196. A. G. O., Report of Survey.

Form 1 and 1a. I. G. O., I. and I. Report.

When the organization is located at a place where there is no Camp Quartermaster, additional vouchers will be necessary.

Vouchers will be posted immediately on completion of the transaction and stamped on the brief "Posted." The original will then be forwarded to the Quartermaster General.

The account will be closed on June 30th and a list of all property on hand will be sent to the Quartermaster General with the following certificate:

(a) I certify that I have taken up all property found, manufactured, or becoming surplus from any cause at ....., ... and that the foregoing list includes all property transactions covered by Voucher No. ....., Fiscal Year ....., date ....., inclusive, and is a correct statement as to the quantity and condition, of all supplies and property pertaining to the Quartermaster Corps (except subsistence stores) actually on hand and for which I am accountable.

Name.....
.....

When an officer is relieved from duty as Quartermaster the accounts will be closed by drawing a red ink line below the last entry under each account, immediately below which will be entered in red ink the balance of each article serviceable and unserviceable as shown by the property account with the notation opposite thereto, "Received from predecessor."

A list of all articles thus brought down will be prepared in triplicate, at the end of which the officer transferring the property will certify as provided for under "(a)"; this certificate will be followed by a certificate of the officer receiving the property as follows:

Post.....
Date.....

I certify that I have this ..... day of ....., 191.., received the supplies and property of the Quartermaster Corps as listed above, and that the condition is as set forth in said list.

Name.....
.....

One copy to Quartermaster General, and one to each interested officer.

All property issued for use will be covered by memorandum receipts, Form 227, duly signed.

Form 229. A general record of property on memorandum receipts will be kept on this form, and a separate sheet prepared for each article.

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The Memorandum Receipts, Form 227, and Debit and Credit Slips, Forms 242 and 243, will be vouchers for posting Form 229.

The Debit and Credit Slips are signed in duplicate, by the officer receiving property, or by the Quartermaster when property is turned in.

At the end of each quarter new duplicate receipts will be prepared by the Quartermaster for signature and the old receipt turned over to the responsible officer.

IN STORE.

Quartermaster's supplies and property in store will consist of all serviceable property not in use, and all unserviceable property. The supplies will be carefully arranged, and the contents of original packages recorded in a suitable blank book. When an inventory is taken all that will be necessary is to verify the loose supplies and unserviceable property, as the original packages and property on memorandum receipts are readily accounted for.

The Blank Forms and Books to be kept on hand are:

Form 12. Officers pay account.
Form 13a. Mileage statement.
Form 45. Account of sales at auction.
Form 160. Requisition, general.
Form 160a. Extra sheets, requisition.
Form 162. Special requisition for public animals.
Form 200. Return of Quartermaster supplies.
Binder, loose leaf, for above form.
Form 201. Invoice and receipt.
Form 203. Monthly list of stores expended.
Form 204. Requisition for stationery.
Form 205. Articles lost or destroyed; voucher.
Form 208. Statement of charges on muster and payrolls.
Form 210. List of articles received from various sources.
Form 211. Requisition for fuel.
Form 213. Requisition for clothing and equipage.
Form 227. Memorandum receipts.
Form 229. Account of property on memorandum receipt.
Form 242. Debit slips.
Form 243. Credit slips.
Form 406. Official telegram.
Manual of Quartermaster Corps.
Circular No. 38, O. C. Q. C. (1913).
Circular No. 28, 1913: Price list of Quartermaster property; list of class A supplies.
G. O. 32, W. D., 1914: Price list of clothing, etc.
Form 277, A. G. O. Descriptive list of public animals.

ORDNANCE OFFICE.

The articles furnished by the Ordnance Department consist of personal equipment of Hospital Corps men, and the horse equipment for mounted Hospital Corps men.

These articles are obtained by requisition on Form 386, receipted for by the Ordnance Officer and carried on a return of Ordnance which is rendered semi-annually, except when a change of Ordnance Officers demand a new return.

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Monthly: Form 94, Report of Ordnance Charges. One copy to paymaster, one retained.

Form 86. Statement of Charges. See "Instructions" on form. One copy to form a voucher with each return.

Semi-annual: Forms 18 and 18a. Return of Ordnance, rendered not later than twenty days after June 30th and December 31st of each year, and when accountability is transferred from one officer to another. To Chief of Ordnance. A copy retained.

The return consists of Forms 18 and 18a, and vouchers. The vouchers are (a) Form 19, Certificate of expenditures for expendable articles.

(b) Form 86. Statement of charges.
(c) Form 146. Invoice and receipts.
(d) Form 152. Transfer of Ordnance property under A. R. 1535.
(e) Forms 272 and 273. Abstract of sales.
(f) Form 196. A. G. O., Survey reports.
(g) Forms 1 and 1a. I. G. O., I. and I. reports.
(h) Letter. Voucher showing articles taken up as found.

Annual: Requisition for blank forms; letter to Chief of Ordnance not later than April 30th of each year.

Occasional: Form 386. Requisition for Ordnance. In duplicate to commanding officer.

Form 146. Invoice and Receipts. Transfer of Ordnance. If no shipment is involved; 5 copies; 4 mailed to receiving officer, who, after receipting for the property; returns the two receipts to the Invoicing Officer, but retains the two invoices which now form vouchers to his reurn (one for retained return, one for return to be forwarded); the Invoicing Officer attaches both receipts as vouchers to his return. The fifth copy is merely kept as a reference before the return of the receipts. If shipment is involved, A. R. 1544-1548: The same rules as stated above apply except that 7 copies are made, 3 of which are furnished the Quartermaster, who receipts for the package or packages, and returns one receipt to the Invoicing Officer.

Form 152. Transfer of Ordnance property under A. R. 1535. Two copies, both signed by issuing officer and by soldier, acknowledging receipt of stores. One copy attached to D/L of soldier, the other forms voucher under which the accountable officer will drop from his return the articles invoiced. The Receiving Officer will acknowledge receipt for articles on the transfer blank accompanying D/L, take up articles on his return, and forward the transfer blank at once to the Chief of Ordnance. He will make a true copy of the blank which now constitutes a voucher to his retained return.

Forms 272 and 273. Abstract of sales (outside and inside sheets). Prepared on end of month during which articles were sold; forms voucher to property return for the period in which sale was made.

Forms 1 and 1a. I. G. O. Inventory and inspection report: Made when necessary in duplicate. Both copies are returned by the Inspector General and then form vouchers to property return. See "Unserviceable Property."

Form 196. A. G. O. Report of survey. Prepared when necessary. Triplicate. Two copies form vouchers to return, the third one is retained at headquarters to be disposed of as required by A. R. See "Unserviceable Property."

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Retained:

1. List or articles to be charged against individual soldiers.
2. Retained return.
3. File memorandum receipts.

The following will be kept on hand:

Ordnance property regulations.
Price list of Ordnance property.
Ordnance Department Forms: 18, 18a, 19, 86, 94, 146, 152, 272, 273 and 386.
Forms 1 and 1a I. G. O.
Form 196, A. G. O.

MEDICAL PROPERTY OFFICE.

Monthly: Requisition for blank forms (Form 37, M. D.), to be made monthly if required. One copy to S. M. B. G., one retained.

The following forms will be kept on hand: Medical Department, 12, 17, 17a, 17b, 17c, 19, 24, 27, 28, 32, 35, 68 and Price list of Medical Supplies. War Department, 320, 320b, 322, 322a, 325, 330 and 330a.

Requisition for supplies (Form 35, M. D.); two copies to S. M. B. G., one retained, monthly.

Information slips (Form 68, M. D.). For ribbons, typewriter, clinical thermometers, vaccine virus, etc., occasional.

Voucher for Hospital Laundry (Forms 330-330a, W. D.): Original and attached duplicate to S. M. B. G. See M. M. D., Par. 328 and 336, A. R., Par. 550 and 562, and notes on Form 330-330a, (W. D.).

Occasional:

Articles purchased:

(a) Form 330 and 330a, War Department, one copy.
(b) Form 12, M. D., Invoice of articles purchased.

A copy of (a) and (b) to Surgeon General through S. M. B. G. A copy of Form 12 to be filed with property return. For preparation see notes on back of form.

Property return in duplicate; Forms 17, 17a, and 17c direct to the Surgeon General. When property is transferred to another officer, Forms 17, 17b, 17c and accompanying vouchers are retained. See Par. 510, M. M. D. and instructions on Form 17.

Transfer of Medical Property (Forms 24, 27 and 28, M. D.). In ordinary transfers of medical property the transferring officer will forward one invoice to the Surgeon General direct, and one to the receiving officer with two receipts for signature. The latter will promptly forward one receipt to the Surgeon General, and one receipt to the transferring officer.

Invoice of medical property shipped, 4 copies: Three to Quartermaster, one retained (Form 19, M. D.).

ACCOUNT OF SALES, MEDICAL PROPERTY.

Within ten days after the end of the month during which the accountable officer receives the proceeds of the sales he will render to the Surgeon General, direct, on account current, Form 320b (when he is accountable for funds under not more than two heads) or Form 320 (when he is accountable under more than two heads), War Department, crediting the United States thereon under the proper heading with the net proceeds of

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the sales, and debiting the United States with the amount deposited. He will insert the proper heading, that is, the designation of the proper fund to which the proceeds go, in one of the blank spaces provided therefor at the top of the ruled columns. He will forward with his account an exhibit in duplicate of the articles sold, as follows:

1. In the case of a sale of condemned propery at auction or on sealed proposals,—if there were any expenses attending the same, the exhibit will be made out on Form 325, War Department, and be accompanied by the vouchers for the expenses of sale; and if there were no expenses the exhibit will be made out either on Form 325 or on Form 322, War Department, as the accountable officer may prefer; in either event, the exhibit will be accompanied by a copy of or a suitable extract from the inventory and inspection report.

2. In the case of sales of medicines to civilians under paragraphs 296 to 298, M. M. D., 1911 (including medicine charges for patients in hospital), the exhibit will be made out on Form 322a, War Department.

3. In the case of other authorized sales, the exhibit will be made out on Form 322.

A duplicate of the account and a triplicate of the exhibit should be retained by the officer.

Memorandum receipts in duplicate for property issued. Accountable and responsible officers each have one.

Location of property: Book showing location.

Statement of charges on payrolls: Certificate in duplicate; one to Surgeon General, one retained with property return.

UNSERVICEABLE PROPERTY.

Property to be acted on by an inspector.

1. Property worn out by fair wear and tear in the service with or without salable value.

2. Public animals of no further use to the government.

3. Property which has been rendered unserviceable from causes other than fair wear and tear in the service (except infected clothing, and stores so deteriorated as to endanger health or injure other stores) after it has been submitted to a surveying officer.

4. Damaged or unserviceable medicines, medical books, surgical or scientific instruments and appliances pertaining to the Medical Department will not be presented to an inspector until permission is obtained from the S. M. B. G.

Inventory and Inspection Reports (Forms 1 and 1a, I. G. O.) in duplicate. Both copies to Inspector, who will return them upon completion: One to Surgeon General, one retained with return.

Property to be acted on by a surveying officer.

Form 196, A. G. O. See "Instructions" on back of form, and A. R. 657 and 726. Three copies to Commanding Officer.

1. Property worn out by fair wear and tear in the service of no salable value.

2. Property rendered unserviceable by fair wear and tear (except public animals of no further use to the government requiring only an inspector) which requires after a surveying officer an inspector. The following property will be inspected by the Commanding Officer to

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determine whether or not it has salable value before destruction but does not require an inspector:

(a) Infected clothing.

(b) Stores so deteriorated as to endanger health or injure other stores.

(c) Unserviceable property of no salable value.

In case the invoice value of stores involved exceeds $500.00 the approval of the next higher administrative commander will be obtained before destruction of the property.

Paragraph "c" in its application to Ordnance property will be limited to utterly worthless articles constituting the soldier's personal equipment (not arms), and horse equipment, the cost price of which does not exceed $100.00 for mounted organizations and $50.00 for all other cases.

In each case the report will give the dates of receipt of stores surveyed.

GENERAL COURTS-MARTIAL.

When it is recommended that a soldier be tried by a General Court, the following papers will be forwarded:

1. Charges and specifications. See form below.
2. Brief statement signed of testimony expected from each witness and the accused.
3. Statement of services.
4. Record of previous convictions.
5. Surgeon's report on alleged deserter.
6. Indorsement by the commanding officer, similar to the following:

"93. 1st Ind.

Evacuation Hospital No. 1, Galveston Texas, July 15, 1914. To the Commanding Officer, Port of Embarkation, Galveston, Texas:

1. Charges and specifications, statement of services, records of previous convictions, surgeon's report on alleged deserter and brief statement of testimony expected from witnesses in the case are herewith enclosed.
2. I have investigated the charges and believe that they can be sustained.
3. Recommend that the case be tried by a General Court.
4. Incls.

Signed.....

FORM OF CHARGES (Legal cap paper).

Charges and specifications preferred against Private John Doe, Hospital Corps, U. S. Army, Violation of 47th Article of War.

Confined July 10, 1912.

Enlisted April 6, 1911.

Previous convictions: None.

Rate of pay: $16.00 per month.

Charge I:

Specifications.

List of witnesses:

(Signed) WILLIAM FAST.
Captain 9th Infantry.

1. James Oruls, Civ.
2. Private A. F. Jones,
   Hosp. Corps, U. S. Army.

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SPECIAL COURTS-MARTIAL.

Extracts from C. M. C. M., Nos. 1 and 2, 1913:

To consist of from three to five officers, and a judge advocate.

Commanding officer may appoint the court for his command.

No officer is eligible to sit as a member of the court when he is the accuser, or a witness for the prosecution.

It shall not try officers or candidates for promotion.

Limit of punishment is six months confinement and six months pay, and in addition thereto reduction to the ranks, or reduction in classification.

The order convening the court-martial, the charges submitted for trial thereby, the procedure before the court and the record will be similar to the order, the charges, the procedure and the record, respectively, in the case of a general court-martial, except that as to the procedure, and the record in trials by special court-martial, the statements and arguments made before the court will not be recorded, nor will the testimony taken before such special court-martial be reduced to writing unless directed by the authority referring the case to court for trial.

"Each Special Court-Martial shall keep an accurate record of its proceedings separate for each case, which record shall contain such matter as may be required or indicated in the form prescribed for the record of a Special Court-Martial."

Record to be signed by president and judge advocate.

A judge advocate should affix his signature to each day's proceedings.

FORM OF ORDER CONVENING A SPECIAL COURT-MARTIAL.

Headquarters Evacuation Hospital No. 1,
Galveston, Texas,
.....(*date*).....

SPECIAL ORDERS,
No. .....

A special court-martial is appointed to meet at .....(*place*)....., at .....(*hour*)....., on .....(*date*)....., or as soon thereafter as practicable, for the trial of such persons as may be properly brought before it.

Detail for the court:

Captain John Doe, M. C.
Captain Richard Doe, M. C.
Captain William Doe, M. C.
Captain James Roe, M. C., Judge Advocate.

A greater number of officers cannot be assembled without manifest injury to the service.

By command of Major.....
.....(*name*).....,
Captain, Medical Corps,
Adjutant.

Charges preferred are sent to the commanding officer, who, if he so decides, refers them by indorsement as follows:

First Indorsement.

Headquarters Evacuation Hospital No. 1, Galveston, Texas.
July 6, 1914.

To the President of a Special Court-Martial, convened at this Hospital, per S. O. No....., ...(*date*)....., for trial:

By order of Major.....

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After trial the President returns the above charges by indorsement, enclosing the proceedings of the special court.

The commanding officer reviews, and enters on the proceedings his approval, or disapproval of the findings, with such remarks as are deemed necessary. For example:

Evacuation Hospital No. 1, Galveston, Texas, July 16, 1914.

The sentence of "six months confinement at hard labor" imposed by the court-martial in the foregoing case of Private ....., Hospital Corps, U. S. Army, is hereby approved and will be duly executed.

The Guard House at Fort Crockett, Texas, is designated as the place for confinement.

....,
Major, Medical Corps,
Commanding Hospital.

The commanding officer will issue an order promulgating the sentence as follows:

Evacuation Hospital No. 1,
GENERAL ORDERS Galveston, Texas,
No. ... .(*date*).....

Before a special court-martial which convened at Ft. Crockett, Galveston, Texas, on .....(*date*)....., pursuant to S. O. No. .., Evacuation Hospital No. 1, ...(*date*)....., and of which Captain .....(*name*)....., Medical Corps, U. S. Army, was president, and Captain .....(*name*)....., Medical Corps, U. S. Army, was judge advocate, was arraigned and tried.

Private .....(*name*)....., Hospital Corps, U. S. Army, Evacuation Hospital No. 1.

Charge: (*Charge entered here.*)
Specification I: (*Specification entered here.*)
To which the accused pleaded as follows:
Specification: "Not guilty."
Charge: "Not guilty."

FINDINGS:

Of the specification: "Guilty."
Of the charge: "Guilty."

SENTENCE:

To be confined at hard labor at such place as the reviewing authority may direct for six months.

ACTION:

The sentence of six months' confinement at hard labor imposed by the court-martial in the foregoing case of Private .....(*name*)....., Hospital Corps, U. S. Army, is hereby approved and will be duly executed.

The Guard House at Fort Crockett, Texas, is designated as the place for confinement.

By command of Major.....
.....(*name*).....
Captain, Medical Corps,
Adjutant.

The proceedings of the court and the order and decisions of the review-

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ing authority made thereon will be sent to the Commander, Line of Communication.

Post Commanders will not refer to Special Courts charges for offenses punishable by death. In cases punishable under executive order by greater penalties than are within the power of Special Courts, the Post Commander will take into consideration the circumstances of the case and will exercise his discretion whether the interests of discipline will be satisfied by a punishment within such power.

In cases where there are five or more previous convictions, the Post Commander will exercise his discretion as to trial by Special Court-Martial, or forward charges recommending trial by General Court-Martial.

In case of fraudulent enlistment the Post Commander will personally interview the accused, and in making his recommendation will report the results thereof with respect to his impressions of the man, the sincerity of his intentions and the probability of his carrying out these intentions.

METHODS OF WRITING LETTERS AND INDORSEMENTS.

(See Model Form.)

In Triplicate: One to be retained, two forwarded.

(1) Heading, subject and number of letter will be on the upper fold of the letter. No other matter will be on this fold.

(2) Body of letter: Single spaced, with double space between paragraphs. The paragraphs will be numbered consecutively.

(3) Signature: No ceremonial form will be used. If rank, regiment, etc., appear at the beginning of a letter they will not appear after his name, but if they do not appear at the beginning of a letter they will follow under his name. The original is signed, but duplicates not. The carbon copy retained for the office record will be initialed by the person responsible for the letter, and such person is charged with the duty of seeing that the name of the official who signs the letter and any changes made before signature are inserted on the carbon copies.

(4) Only one side of the paper will be used except as further provided. The pages will be numbered midway about one-half inch from the bottom. An indorsement will be referred to thus: "5th Ind., page 3."

(5) Office marks: The stamp bearing office numbers will be placed on the back of the lower fold of the first sheet, beginning at the top, thus:

Jul 19 HEADQUARTERS 1912
824
Ft. Wm. H. Seward, Alaska.

The received and received back stamps will be placed immediately below the body of the letter, and in case of indorsements, immediately below the proper indorsement, thus:

"Rec'd Dept. Columbia, July 27, 1912."

When a communication of two or more sheets is filed the back of the lower fold of first sheet will be on the outside, exposing the office numbers.

(6) Brief: The first fold of first page will be the brief.

(7) Letter paper will be folded in three and foolscap in four equal folds, parallel with the writing. The top fold will be folded toward the back and the third fold over the face of the letter.

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(8) Inclosures: All inclosures will be numbered at the bottom of the last fold, thus: "1 incl." Additional inclosures will be numbered consecutively in the order with which they are attached, thus: "3 incls.—7th Ind." The proper office marks will be entered on all inclosures, beginning at the top of the back of the last fold, thus: "3467 Hq. Dept. Mind." Inclosures to the original communication will be noted on the face of the letter to the left of the signature, and also at the bottom of the back of the last fold of the first page, thus: "2 incls." If other inclosures are added when an indorsement is made, their number will be noted at the foot of the indorsement to which they pertain, thus: "(3 incls. added) 5 incls." This notation will also be entered at the bottom on the back of the lower fold of the first sheet of original communication, thus: "3 incls., 7th Ind.; total, 5."

(9) A letter not properly briefed, such as those originating outside the service, will be briefed, if necessary, as follows: A slip of paper of the proper length and width will be pasted for this purpose along the upper edge of the first page of the letter.

(10) Indorsements: The writing width of indorsements will be the same as that of letters. The first indorsement will begin about one-half inch below the rank after the signature of the writer of the letter, and succeeding indorsements will follow with a space of about one-half inch. Paragraphs will be numbered. Routine indorsements are to be signed with initials.

BLANK FORMS TO BE KEPT ON HAND.

MEDICAL DEPARTMENT.

Form No.	Name of Form.	No.
6	Payroll of Employes	3
6a	Memorandum of Payroll of Employes	3
12	Invoice of Articles Purchased	6
17	Return of Medical Property, front	5
17a	Return of Medical Property, original	800
17b	Return of Medical Property, retained	800
17c	Return of Medical Property, back	5
19	Invoice or receipt Medical Supplies delivered to Q. M. for transportation	6
24	Invoice of Medical Supplies, field	6
27	Receipt for Medical Supplies, field	6
28	Invoice or Receipt for Medical Supplies	16
32	Packers' Lists	6
35	Special Requisitions for Medical Supplies	20
37	Requisition for Blanks	6
47	Return of Hospital Corps (peace)	6
47a	Return of Hospital Corps (war)	6
48	Application for Transfer to Hospital Corps	6
49	Statement of Hospital Fund	6
49a	Employe's Certificate of Indebtedness	6
50	Monthly Sanitary Report	6
51	Report of Sick and Wounded	8
51a	Nominal Check List, sheet 1	8

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51a	Nominal Check List, sheet 2	8
52	Register and Report Card	500
52a	Index to Register of Patients	250
68	Information Slip Book	1
74	Mess Account	6
77	Prescription File, book	1
78	Syphilitic Register	10
82	Daily Field Report of Personnel and Transportation	50
83	Daily Field Report of Patients	50
96	Request for Wasserman Test	25
97	Wasserman Card	25

ADJUTANT GENERAL'S DEPARTM'NT.

Form No.	Name of Form.	No.
3	Notification of Discharge	6
15	Statement of Service	6
17	Certificate of Disability	6
18	Tri-Monthly Report of Enlistments	8
19	Discharge Certificate, without honor	4
20	Discharge Certificate, dishonorable	4
22	Enlistment Paper	6
23	D. & A. Card	6
28	Field Return	6
29	Descriptive Lists	50
34	Inventory of Effects of Deceased Soldier	12
21	Muster Roll of Detachment	6
61-1	Muster Roll of Detachment, extra sheet	12
59	Report of Cases Tried by S. C.	6
66	Furlough	6
87	Report of Desertion Slip, book	1
99	Record of Trials by S. C.	8
135	Report of Physical Examination of Recruits	6
143	Medical Certificate for Leave of Absence	6
149	Return of Casualties in Action	6
196	Report of Survey	6
203	Discharge Certificate, honorable	6
260	Identification Record Card	6
261	Photograph and Negative Jacket	6
265	Monthly Report of Medical Examination of Recruits	8
277	Descriptive List for Public Animals	8
332	Morning Report of Detachment	6
339	Morning Daily Sick Report	6
380	Designation Card	6
383	Requisition for Books and Blanks	8
415	Report of Death	6
429	Efficiency Report of Officers	6
484	Proceedings of a Board of Medical Officers	12
489	Model Remarks for Muster Roll	1
	Correspondence Book	

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QUARTERMASTER'S DEPARTMENT.

Form No.	Name of Form.	No.
8a	Advice of Soldier's Deposits	6
12	Officers' Pay Accounts	12
13a	Mileage Statement	6
16	Final Statements	12
28	Payrolls, sheet 1	8
28a	Payrolls, extra sheets	16
28b	Model Payroll	1
38	Allotment of Pay, book	1
39	Discontinuance of Allotment	12
41	Deposit Books	8
45	Account of Sales, auction	3
69	Model Remarks for Payrolls	1
70	Instructions for Payrolls	1
160	Requisition, general	6
160a	Extra Sheet, requisition	12
161	Estimate of Clothing and Equipage	8
162	Special Requisition for Public Animals	8
165	Detailed Statement of Clothing, front	50
165a	Detailed Statement of Clothing, inside sheet	75
165b	Detailed Statement of Clothing, back card	50
200	Return of Q. M. Supplies	800
	Loose Leaf Binder	1
201	Invoice or Receipt for Q. M., Supplies Transferred	8
203	Monthly List of Q. M. Supplies Expended	8
204	Requisition for Stationery	8
205	List of Articles Lost or Destroyed	8
208	Statement of Charges on Muster and Payroll	8
210	List of Articles Taken Up	8
211	Requisition for Fuel	8
213	Requisition for Clothing and Equipage	4
218	Requisition for Forage (pads)	1
223	Ration Returns (books)	2
227	Memorandum Receipts	24
229	Memorandum Receipt Account, loose leaf	48
242	Debit Slip, memorandum receipt book	1
243	Credit Slip, memorandum receipt book	1
406	Official Telegram (book)	1
442	Document File Jacket	48
3	Voucher for Commutation of Rations for Soldiers in Hospital.	8

ORDNANCE DEPARTMENT.

Form No.	Name of Form.	No.
18	Return of Ordnance and Ordnance, cover	5
18a	Inside Sheets	12
19	Certificate of Expenditures, Material	8
86	Statement of Charges on Muster and Payrolls	8
94	Monthly Report of Charges on Muster and Payrolls	8

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146	Invoice of or Receipt for Ordnance Property Transferred....	8
152	Transfer of Ordnance.....	8
272	Abstract of Sales, outside sheet.....	8
273	Abstract of Sales, inside sheet.....	8
386	Requisition for Ordnance and Ordnance Stores.....	8

INSPECTOR GENERAL'S DEPARTMENT.

Form No.	Name of Form.	No.
1	I. & I. Report.....	6
1a	Insert for same	20

WAR DEPARTMENT.

Form No.	Name of Form.	No.
320	Account Current	8
320b	Account Current	8
322	Account of Sales	8
322a	Account of Sales	8
325	Account of Sales	8
330	Voucher for Supplies Bought or Services Hired.....	8
330a	Voucher to Accompany Form 330.....	8

MANUALS, ETC., GENERAL STAFF.

Army Regulations.
Drill Regulations, Hospital Corps.
Field Service Regulations.
Manual for the Medical Department.
Manual for Courts-Martial.
Manual for the Quartermaster Corps.

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New Ward Tent for Field Hospitals—Its Advantages As Observed at Field Hospital No. 3 Texas City—Method of Closing In Tent for Winter Months*

By William H. Smith, Captain, Medical Corps, U. S. Army.

THE NEW WARD TENT.

THE new hospital ward tent is made of regulation olive drab canvas, and in shape conforms to that of the turtle back tent, commonly used by circuses. The crest of the ridge of the tent is approximately forty feet long, and the roof slopes symmetrically, at ends and sides, to the side walls, at an angle of about forty-five degrees.

The skirt or wall of the tent is four feet high and is laced at the corners. This scheme of lacing at the corners facilitates the rolling up of the side walls in warm weather.

The top or crest of the tent is reinforced with one and one-quarter inch rope, and there are steel rings, about fourteen inches in diameter, fixed every ten feet in the top of the tent. The rope reinforcement is well secured to these rings.

There are four stout chains, sixteen inches long, at equal distances apart on each one of these rings. The other end of each chain is fixed in a steel disc, about three and one-third inches in diameter. In the center of this disc is an opening for the insertion of the iron pin in the end of the pole.

Four regulation hospital tent poles are required for each tent. These uprights are placed equal distances apart, and their position corresponds to the rings in the top of the tent.

This method of supporting the tent poles has a number of advantages; the tent swings independently of the uprights, thus eliminating friction, rubbing, and wearing of the canvas, which occurs when a ridge pole is used, as with the old regulation hospital tent. These short chains, with the disc attachments, allow the tent freedom to swing; thus it rides with the currents of air, like a ship at sea, affording quieter quarters for the sick than the old tent, where in windy weather we always had the flapping fly, and squeaking of the poles and ridges.

The four openings where these steel rings are sewed in the top of the tent afford ample ventilation. These vents can be

*Read by title at the Twenty-third Annual Meeting of the Association.

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closed during inclement weather by pulling a canvas hood around the four suspension chains. When these vents are closed, it gives the tent the appearance of having four small cones peering from the crest.

There is a door at each end of the tent. These are closed over by lapping flaps of canvas, similar to those of the pyramidal tent.

The new ward tent was first used experimentally at Washington, D. C., in May, 1912, by Field Hospital No. 3. In this, the initial trial, it was favorably reported upon after a four months' test. At this preliminary test it was found that in floor space one of these tents was more than equivalent to three regular hospital tents. In weight there is a saving of fifteen hundred pounds, and in cost there is a saving of three hundred dollars on each field hospital.

It is as easy to pitch as a regular hospital tent, and taking ward for ward, less labor is involved in pitching the new tent, as there are only one hundred and sixteen pins to drive, compared to one hundred and thirty-two for three regular hospital tents. There are no heavy and clumsy ridge poles to handle, no awkward adjustments, no abutments or alignments of tents to make.

Upon recommendation of the Surgeon General, the Quartermaster Department manufactured twenty-four of these tents and issued them to each of the four field hospitals.

In September, 1913, six of these tents were shipped to Field Hospital Co. No. 3, at the Mobilization Camp, Texas City, Texas, where they were immediately pitched, and there used for the shelter of the sick until April 24, 1914, when Field Hospital Co. No. 3 was ordered to Vera Cruz, Mexico. These tents were used constantly as wards for the sick.

Anyone who has had the fortune or misfortune of spending a winter season in South Texas, will know that every kind of weather possible is encountered; therefore we had ample opportunity to try out these ward tents in a practical way, under all climatic conditions.

The advantages this new tent offers over the regulation hospital tent, as observed at Field Hospital Co. No. 3, Texas City, Texas, are briefly summarized as follows:

First: It is more commodious, offering about ninety-six more square feet of floor space than three regular tents, formerly

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required for a ward, thus affording adequate room for four or even six more cots, if they be crowded.

Second: It is lighter, weighing two hundred and fifty pounds less than three regular hospital tents, making the total weight of ward tentage for a field hospital 3,020 pounds, in contrast to 4,520 pounds, with the eighteen regular hospital tents.

Third: It costs less, there being considerably less canvas in a new ward tent than in three regular hospital tents, representing a saving of three hundred dollars for material and labor on each field hospital.

Fourth: The new tent requires six less pins and two less poles than is required in the regular hospital tents. There are no ridges necessary, thus there is a material saving in labor in the transporting and pitching of this new ward tent.

Fifth: It is quieter and thus more suitable for the sick. Annoyance of the flapping fly and creaking poles and ridges are done away with and avoided, as already alluded to.

Sixth: It is more durable. The manner in which the tent oscillates with the wind reduces the damage from tearing and ripping to a minimum. This point can be emphasized by stating here that the first experimental tent, which was used in Washington in 1912, was also used by us in Texas City for nine months as a storage tent, and was in a serviceable condition when we left. During these nine months the flies in the regular hospital tents had to be replaced and repaired a number of times, and a complete outlay of this tentage was required once.

Seventh: The tent is more substantial, for owing to its peculiar shape less resistance is afforded to the wind.

Eighth: There is less labor involved and time consumed in pitching one of these new tents than in pitching three regular tents.

Ninth: The new tent, we found, was just as cool in hot weather and just as comfortable in cold weather as the regular tent. The weather in South Texas is not as mild as the literature of the city promoters indicates, and many times the mercury dropped below the freezing point.

The first winter in camp there was no flooring or framing provided for the hospital wards, and, no doubt, the patients were sometimes uncomfortable during these blizzards.

As soon as the camp at Texas City presented signs of permanency, lumber was obtained and framing and flooring were provided for all the tents, adding materially to their comfort and security.

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The floors of the new ward tents were 49x16 feet, it requiring twenty-four pieces of 2x4x16, and fifty pieces of 1x12x16 to construct each.

The side walls of the frame corresponded in height to the skirt of the tent. It required twenty-four pieces of 2x4x12, and sixty-eight pieces of 1x12x12 to close in the sides and ends of each tent.

There were four openings, 18x24 inches, left in each side wall for ventilation. These were screened and provided with a sliding shutter, so they could be closed when the weather was very cold.

The ends of the tents were framed in and closed with screen doors. The height of the tent will not permit the use of a standard size screen door, so we had to improvise doors, made of 1x3 inch strips of lumber.

We had canvas curtains on these doors which could be rolled up in pleasant weather, and dropped and secured at the bottom of the door when the weather was cold and windy. It was seldom necessary to close the tent completely at the end. When Northers were active, we would simply stretch taut one flap of the tent on the windward side of the door. This would leave sufficient room to open and enter the door. The flap so stretched also acted as an awning and screen for the door. This was usually adequate protection from the driving rain and winds.

HEATING SYSTEM.

One-gallon "Perfection" oil heaters, with cylindrical wicks. were first used, but these were soon dispensed with as the oil did not furnish adequate heat. These oil heaters were also objectionable on account of the odor; it was also a task to keep them clean and in a serviceable condition, as they are not fool-proof, and soldiers would manipulate them roughly, often breaking the wick adjustments.

When the oil stoves were discarded, oval shaped box stoves, made of light sheet iron, were tried. These stoves were approximately eighteen inches wide, twenty-four inches long, and about sixteen inches deep.

One of these stoves was required for each ward tent. The stove was placed near the first upright in the north end of the tent. The stovepipes were riveted together in two and four joint sections, making it more secure and easier to handle. Sixteen joints of pipe and two elbows were ultilized in each ward. Beginning at the stove, there were two joints, perpendicular;

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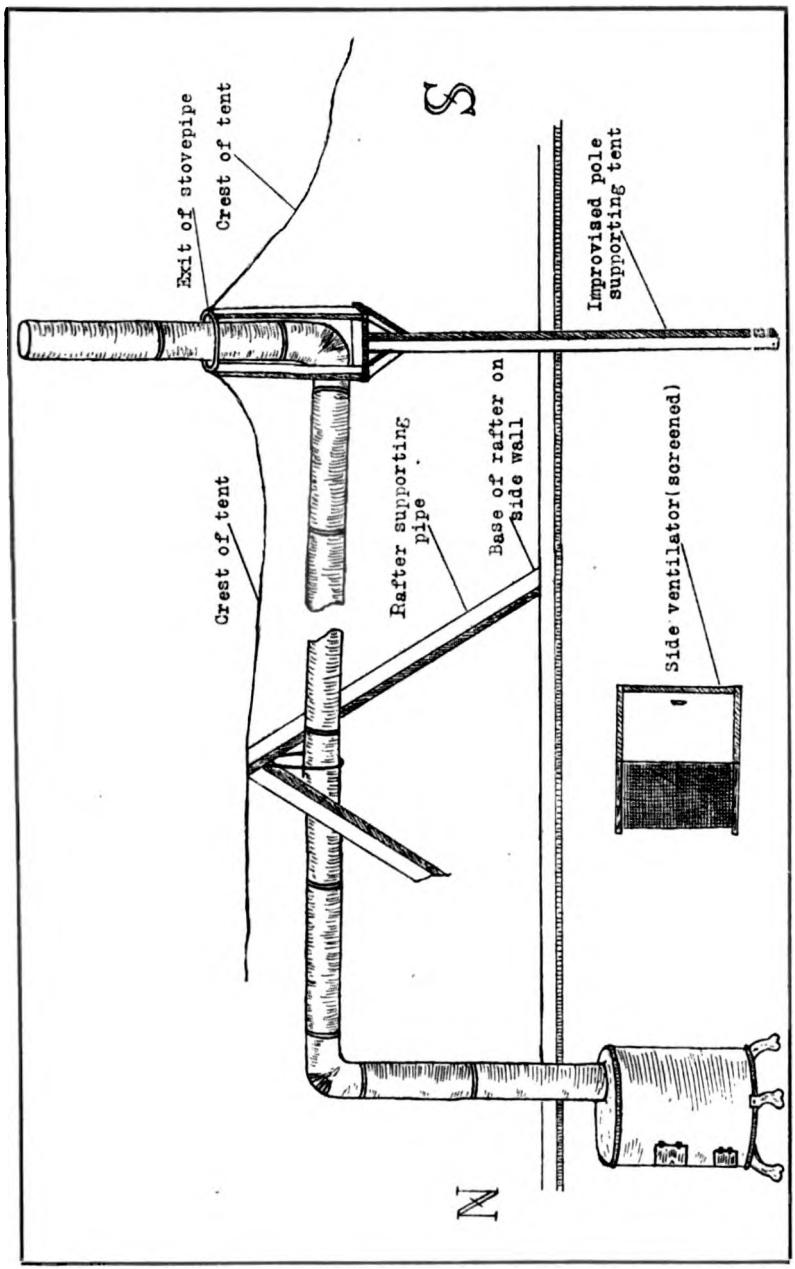

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then three four-joint sections connected with an elbow, which ran lengthwise the tent, with a slight elevation. Here with another elbow the pipe was directed upward, and lastly two perpendicular joints, which extended through the last hole in the crest, at the opposite end of the tent from the stove.

The pipe was suspended by means of wires from rafters of 2x4 inch lumber, which rested on the side wall of the tent frame. On account of the size of the pipe it was necessary to remove one pole from the tent, where the pipe made its exit. The tent was supported by an improvised method as illustrated in "Exhibit A." This difficulty could be overcome by making two additional openings in the top of the tent for the outlet of stovepipes.

This method of heating proved adequate and very satisfactory in the camp at Texas City. In a colder climate two stoves would be necessary for each tent.

The scheme of running the stovepipe through the whole length of the tent had some points in its favor. It did away with live sparks, which were troublesome when the pipe ran directly out of the tent from the stove. Several times the tents were burned by sparks before we adopted this method of putting up the pipe. The amount of heat distributed by the exposure of so much hot pipe is a factor which reduced the amount of fuel and added comfort to the tent. The heat was pretty well distributed over the tent.

The wood stoves were better than the oil stoves in several respects: First, the disagreeable odor of the oil stoves was eliminated. Second: They caused less contamination of the air. Third: They required less attention and had no delicate adjustments to be broken, as the oil stoves have. Fourth: They furnished ample heat and kept the wards comfortable, which could not be done with the oil burners.

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The Emergency Hospital of the Panama-Pacific Exposition

By Rell. M. Woodward, Surgeon United States Public Health Service.

THE Panama-Pacific International Exposition commemorates the completion of one of the world's greatest engineering feats—the Panama Canal. This waterway will be of interest and assistance to all countries, and it is expected therefore that the great exposition in San Francisco will represent the growth and progress of all nations. Every national exposition strives to outdo all that have gone before. The present indications are that the exposition in San Francisco will succeed in this attempt.

It is estimated that there will be an average daily attendance of forty thousand, with a possible two hundred thousand on special occasions.

Where so many persons are gathered together, illness and injury will occur, and it is therefore necessary that an emergency hospital be provided on the grounds, and thoroughly equipped to take care of such persons until they can be removed to other institutions or to their homes.

As injuries naturally occur during the construction of buildings, the hospital here was one of the first structures to be erected and occupies one wing of the Service Building, now completed. The president of the exposition officially requested the Surgeon General of the United States Public Health Service to detail an officer to take charge of the emergency hospital, and the writer was assigned this duty by the Surgeon General with the approval of the Secretary of the Treasury.

A large number of the buildings on the exposition grounds must necessarily be of a temporary nature, and such is the construction of the Service Building in which the hospital is located. Consequently some ideas of modern hospital construction cannot be installed in this hospital. This does not interfere, however, with the general ideas of modern asepsis, and it is intended to make the hospital practical in every respect. As at present planned, it comprises a waiting room, receiving and diagnosing room with lockers for patients' effects, a treatment room, operating room, sterilizing room, dark room, offices, nurses' quarters,

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including dining-room and kitchen, pharmacy and five wards. The hospital is nicely located with large windows providing an abundance of light. The wards are designed to accommodate three beds each. In addition to the ward beds it is proposed to purchase a supply of folding cots with bedding for same. It is hoped that the necessity for the latter will not arise, but in case of an accident of any magnitude they will be needed, and it is the object to provide for any contingency, no matter how remote it may be.

It is the purpose of the exposition officials that the hospital be equipped largely by donations or loans from various manufacturers, their products to be entered as working exhibits, subject to award. The hospital will be open to the inspection of all physicians, nurses, pharmacists or others interested in hospital construction and management, and thus the working exhibits will be brought to the attention of such visitors in a practical manner. The ready response that has been made by numerous manufacturers to the invitation to install such working exhibits leads to the hope that the hospital will be representative of the leading manufacturers of hospital supplies throughout the country.

Numerous novel ideas in hospital equipment have been introduced. Two automobile ambulances will be installed near the hospital for service during the construction of the buildings and after the exposition is opened. The hospital is conducted by medical officers of the United States Public Health Service, assisted by a corps of trained female nurses and other attendants. Suitable badges have been furnished by the exposition to the officers and attendants of the hospital, which provide ready access to any building on the grounds, thereby saving delay in time of emergency.

As the name implies, the hospital is intended solely for emergency cases, and it is not the intention to treat the numerous illnesses that may occur among the thousands of visitors and employees. It will of course be necessary to make some exception in the case of the foreign resident population, such as Esquimaux, Hawaiians, Filipinos, etc., who for the time being may be wards of the exposition.

Patients admitted to hospital will be kept only long enough to properly attend to the emergency requiring their admission, when they will be transferred to one of the city emergency hospitals, to some other institution, or to their homes. A large majority of the cases will undoubtedly fall under the head of out-patients.

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It is not contemplated to write extensive histories of such cases as are admitted to hospital, but a card index system is kept, the cards being large enough to allow a reasonably detailed history, which will make a permanent record and be of service in case of medico-legal complications.

The Chief Surgeon of the City Emergency Hospital Service is in full accord with the ideas of the writer, and has offered to co-operate in every way, which is fully appreciated. Co-operation with the City Health Officer is also anticipated, and an endeavor will be made to observe all city ordinances governing hospital management.

It may be found necessary or desirable later on to install one or two first-aid stations at distant points on the grounds where a bandage or splint can be applied or a restorative administered pending the transfer of the patient to the emergency hospital.

Among the novelties of the hospital will be a reference medical library. Invitations have been extended to all of the publishers of medical books to furnish to the hospital the works issued between now and the opening of the exposition, and also the books issued during the exposition period. Some of the publishers have already responded favorably to this proposition. If a sufficient number comply, it is the intention to devote an entire ward to the purpose of the hospital library. It will be equipped with sectional bookcases, together with suitable tables, chairs, stationery, etc., where visiting physicians may consult the newest publications on any branch of medicine, make notes, and order books from the publishers if desired. This will not interfere in any way with such exhibits as the publishers may desire to make in the exposition palaces. Another feature of the hospital will be the X-ray outfit. One of the largest manufacturers of this apparatus has installed a very extensive and complete equipment, so large in fact that a ward will be set aside for this purpose. Here may be seen the latest ideas in X-ray science with all of the accessories found to be of assistance in this line of work. A competent expert is in charge of this exhibit, who will demonstrate same to visitors, and who will also assist the hospital officers in the X-ray work on patients admitted.

It is customary for all national associations to hold their annual meetings in the city where a large exposition is being held. For some time past efforts have been made by the exposition officials to secure the selection of San Francisco in 1915 by various organizations. Undoubtedly the national medical

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bodies, including the American Medical Association, will hold their annual meeting in San Francisco during the exposition year. This will attract thousands of medical men to the city, and it is hoped that they will avail themselves of the opportunity to visit the emergency hospital and become acquainted with some of the latest advances in hospital equipment to be there installed. Such visitors will be more than welcome, and it will be one of the duties of the hospital staff to show them every attention.

Some idea of the amount of work that may be expected by the emergency hospital will be gained by reference to the work done by the emergency hospital at the Buffalo exposition under the direction of that able surgeon, the late Roswell Park. The total number of cases treated there was five thousand five hundred and sixty-seven. After the exposition opened there was a daily average of twenty-six patients. Most of the cases were of course out-patients, but there were in addition many hospital cases. There were fourteen fatalities. Three children were born on the reservation; two epidemics of measles and one of mumps occurred among certain of the resident population. It may be of interest to note at this point that the population residing on the grounds amounted at one time to one thousand six hundred and fifty-two.

The hospital at Buffalo was equipped in such a manner that when the national calamity caused by the wounding of the President occurred it was possible to perform the first operation in the exposition hospital. It is the earnest hope of all connected with the Panama-Pacific International Exposition that no event will mar the success of the enterprise, but the hospital is equipped to provide for any and all emergencies.

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The Hygiene Exhibits of the Panama-Pacific International Exposition*

By J. R. Hurley, Passed Assistant Surgeon, U. S. Public Health Service, Superintendent of Hygiene and Sanitation Exhibits.

INASMUCH as the great exposition to be held at San Francisco in 1915 commemorates the linking of two oceans, with all that that implies, the accomplishment of which was admittedly only made possible by the application of the principles of hygiene and sanitation on a magnificent scale, it would seem particularly appropriate that the hygiene and sanitation exhibits shown at this exposition should be of more than usual interest and prominence.

The fact that a goodly number of the members of the Association of Military Surgeons are, in all probability, making plans to visit the Exposition at San Francisco during 1915, and therefore are interested in learning what they may expect to see, especially with reference to things connected with their profession, was the reason for the preparation of a paper on this subject.

Preventive medicine has made its largest strides since the date of the last great exposition held in St. Louis, so the exhibits on hygiene to be shown at San Francisco will be entirely new and such as have never before shown at any exposition.

These exhibits will be located in the Palace of Education and will occupy a considerable area. It is our intention to keep these exhibits scientifically accurate, and at the same time to present them in as graphic and interesting a manner as possible on a plane readily comprehensible to the general public, the end in view being the education of the public to an appreciation of the importance of preventive medicine and the application and observance of the rules of hygiene.

At the date this is written—six months before the time scheduled for the opening of the exposition—it is impossible to predict entirely what exhibits will be shown, or their scope. Undoubtedly, in consonance with the well known trait of human character to postpone action till the very last minute, persons or organizations not thought of at present will later apply for and may be granted space to install exhibits. Likewise, unforeseen events

*Read at the Twenty-third Annual Meeting of the Association.

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may cause certain of our present prospective exhibitors to withdraw.

Speculation has been rife as to what effect the European war will produce on the exposition. Right here it is proper to state that as far as buildings and exhibits go the war will have no detrimental effect on the exposition whatsoever. Curiously enough few of the governments now at war had made any plans officially to participate in the exposition. Those that had so planned, Japan particularly, are, according to latest intelligence, going ahead with their plans, and the war will not interfere with these to any extent.

At the date of writing plans are on foot for the installation of the below mentioned exhibits relating to hygiene and sanitation by the various organizations stated in connection with each.

Social or Sex Hygiene is to be the subject of an important exhibit by the American Social Hygiene Association. Final plans have not been approved at the early date this was written. The idea, however, is to show in a general way the work of their organization in dealing directly or indirectly with the social hygiene movement. The four major divisions of their exhibit will be arranged with a view to attracting the attention of the public to the importance of and the need for studying the social hygiene problem, as follows:

1. Educational.
2. Medical.
3. Scientific.
4. Administrative.

The exhibits will be made up of interesting and instructive charts, diagrams and models which will lead visitors to call at the central booth for the special literature of the association.

It is expected that the American Social Hygiene Association along with many other organizations will hold their convention in San Francisco in 1915, and each of the above-mentioned exhibit divisions will be amplified and given prominence during the corresponding period of their convention schedule.

Mental Hygiene will be shown under two divisions.

Psychiatry and the care and treatment of the insane will be shown by the New York State Hospital Commission.

Feeble-mindedness by the Massachusetts State Lunacy Board.

The former organization is planning for a complete exposition of the subject, which will include the following:

Models of buildings and grounds of an up-to-the-minute insane

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hospital. Water-color pictures of noteworthy features of the New York State Hospitals; drawings and photographs showing occupations and amusements of the insane; the illustration of medical treatment with actual equipment, showing administration of hydrotherapy, electrotherapy, sun rooms, etc.; statistical charts showing principal causes of insanity and showing related physical diseases; charts, etc., on the prevention of insanity, showing education of public, early treatment of insanity, psychopathic ward, dispensary, mental clinics, etc.

The after care of the insane will be dealt with in an appropriate manner.

Modern psychiatry will be shown by demonstrating the work of the psychiatric institute by the use of models, specimens, photographs and charts.

School Hygiene will be most exhaustively exemplified in all its phases by the State of Pennsylvania. It will constitute the main exhibit from this state, and a considerable area has been reserved in the hygiene section for this purpose.

Advanced School Hygiene in the shape of welfare work and preventive medicine as applied to the student body is expected to be shown by the Hygiene Department of the University of California.

Tropical Hygiene will be shown by Cuba and the Philippine Bureau of Health.

The former has a large appropriation for this purpose and they are planning an elaborate exhibit which, in particular, will show the cause and the means of preventing, controlling and eradicating malarial and yellow fevers, and, among other things will present gigantic models, anatomically perfect, of anopheles and stegomyia mosquitoes.

The tuberculosis problem will be handled from various angles.

The California State Board of Health is expected to show the manner in which it is handled in that state with a proposed plan for a standardized way of handling it both as an intra and inter-state problem.

One of the latest and most successful combinations of the outdoor and occupational treatments of the disease as carried out at the Arequipa Sanatorium in Marin County, California, will be shown by the managers of that institution. This will be of unusual interest not only from a medical and scientific standpoint, but also from an artistic and economic point of view. The occupation of the patients at the Arequipa Sanatorium is the making of pottery. These patients are all tubercular work-

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ing girls and women. The samples of pottery seen are of high artistic merit. The exhibit will be a working exhibit, beautiful pieces of pottery being constantly worked on and turned out by the girls throughout the exposition period.

The National Association for the Study and Prevention of Tuberculosis proposes to show by moving pictures their operations as carried on throughout the country, together with their plans for the future.

Housing will be shown by the San Francisco Housing Association.

This subject will also be given an interesting exposition by the Pennsylvania Railroad Suburb Planning Association.

Preventive medicine and hygiene as applied to Hook-worm Disease will be shown by the International Health Commission of the Rockefeller Foundation.

This exhibit will be of high scientific and educational merit, and will contain some magnificent large wax models of the "necator" and its lesions, an expert wax worker having been brought from Germany for the purpose of preparing these models.

The American Medical Association is expected to make an exhibit showing its General Educational Work in Personal Hygiene. This exhibit will throw the spotlight of publicity on fake medical schools, quack doctors and patent medicines.

The subject of alcohol and other habit forming drugs will be interestingly shown by the Woman's Christian Temperance Union.

Occupational Diseases will be dealt with in an exhibit by the Massachusetts State Board of Health.

General Publicity and Public Health Education will be shown in a broad way by the New York State Department of Health.

The San Francisco Health Department is planning an exhibit dealing with Municipal Milk and Meat Inspection. Among the interesting things in this exhibit will be a large relief map of the city and adjoining counties, showing how, where and under what conditions the milk is produced, and showing also its course of shipment, by boat and train to the milk depots in the city and its treatment there, pasteurization, etc., with the actual working apparatus, and so on until it reaches the hands of the consumer.

In connection with the meat inspection, among other things. will be a model abattoir, showing the process of killing and dressing the meat, and the processes of examination for determining unhealthful or unwholesome condition. In connection with this will be a large glass refrigerator in which by actual cuts

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of meat and models of same the various pathological conditions and lesions will be exemplified.

Nursing in all its aspects will be very completely demonstrated by the International Congress of Nurses. They are actively engaged in preparing for their exhibit, and have a considerable space alloted for their booth and exhibit.

They will show matters in connection with nursing under the following general heads:

Public Health Nursing, divided into School Nursing and Settlement Nursing; War Nursing; Hospital Nursing and Private Case Nursing.

The subject of Personal Hygiene will be dealt with in a novel and interesting manner by the National Conference for Race Betterment.

They plan to handle this in a manner free from don'ts, but after the precept and example plan. In other words, their idea is to show the life beautiful. This exhibit will show how to care for the body, beginning with the hour of rising, what and how to eat, what and how recreation should be taken, all from the pleasurable standpoint. This exhibit will also include the subject of clothing or dress.

Mouth Hygiene will be cared for by the International Mouth Hygiene Association. They plan to show, among other things, a model of an up-to-date dental infirmary.

There will also be a wonderful collection of skulls of all races, some of great age and antiquity, from extinct or nearly extinct tribes of Indians and other aborigines, all arranged with the idea of showing the effect on teeth, as well as on the skulls themselves, of various kinds of diet, occupations and treatment, or lack of skilled treatment.

It has been planned that the Disposal of the Dead will be shown by the Cremation Association of America. By photographs of columbaria proposed and already in existence, charts and other matter to illustrate and inform with reference to the subject of cremation, together with the exhibition of numerous beautiful and artistic urns for the reception of the ashes of the dead, this exhibit to be supplemented by moving pictures giving certain details not otherwise shown in the concrete exhibit.

In addition to the above-mentioned exhibits in the Hygiene Section of the Palace of Education, there will be other exhibits referring to hygiene and preventive and curative medicine located in other exhibit buildings about the grounds.

Most prominent of these will be the following government

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exhibits located in the half million dollar government building. Military and Naval Hygiene will be shown here by the Army and Navy Medical Departments, respectively.

The United States Public Health Service is preparing an interesting exhibit, where, among other things, will be shown by still and moving models, the mode of spread of the various infectious diseases. Models of the various types of stations maintained by the Service Marine Hospitals, Quarantine Stations, Tuberculosis Sanatoria, laboratories, etc., will be shown, together with other objects and data illustrating the activities of the Service in preventing and controlling disease.

The Bureau of Mines, Department of Agriculture, will also have in the Government building an interesting Sanitary and Welfare Exhibit, where, among other things, models of properly designed and furnished sanitary miner's houses or homes will be shown, so constructed as to last the probable lifetime of various types of mines, together with various safety and other devices calculated to preserve and conserve the lives of miners.

Still other exhibits referable to this same general subject located in different buildings will be: Industrial Hygiene shown in a practical manner and on a large scale as carried out in their plants by the United States Steel Corporation and the National Cash Register Company, respectively.

Factory Sanitation in its relation to industrial hygiene will be shown by the New York Joint Board of Sanitary Control in combination with the Consumer's League of America.

Vital statistics will be dealt with in a very exhaustive manner by the people most interested as well as best prepared to give an exposition of it—the Metropolitatn Life Insurance Company.

Take it all in all there will be worlds of things to see that are both new and interesting, particularly in matters referring to medicine, with especial reference to hygiene.

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Medical Meetings at the Panama-Pacific Exposition

By Lowell Otes Reese.

PROFOUNDLY interesting among the many hundred conventions and congresses to meet at San Francisco and the Panama-Pacific Exposition during the year is the series of gatherings to be held through the medical period, occurring June 14 to July 3, inclusive. For the whole of this period the new Civic Center Exposition Auditorium has been reserved in its entirety for the American Medical Association and its affiliated exponents of the medical sciences. These various societies, listed to hold their regular medical conventions and congresses in connection with the exposition, are as follows:

Pacific Coast Oto-Ophthalmological Society,
Sessions June 14, 15, 16.
American Society of Tropical Medicine,
Sessions June 14, 15, 16.
American Association Medical Milk Commissions,
Sessions June 17, 18, 19.
Pan-American Medical Congress.
Sessions June 17, 18, 19.
American Climatological and Clinical Association,
Sessions June 18, 19.
American College of Surgeons,
Session June 21.
Medical Society of the State of California,
Session June 21.
American Proctologic Society,
Sessions June 21, 22.
American Therapeutic Society,
Sessions June 21, 22.
American Hospital Association,
Sessions June 21, 22, 23, 24, 25.
American Medical Association,
June 21, 22, 23, 24, 25, 26.
American School Hygiene Association,
June 25, 26.
American Academy of Medicine,
June 25, 26 27, 28.

The Medical Society of the Canal Zone probably will hold its sessions in June also; the Pacific Coast Association of Railway Surgeons later, probably in September, and the American Medical Veterinary Association in August or September. The above list of societies, however, by no means completes the roster of all the organizations devoted to medicine that are to convene at San Francisco during the exposition year. This is pre-eminently a convention exposition, and a large proportion of those coming

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are conventions of societies specializing in one way or another upon the bodily welfare of mankind.

Prominent in this catalogue appear the Panama-Pacific Dental Congress, International Dental Association, National Association of Dental Examiners, Dental Faculties' Association of American Universities, International Dental Federation, California State Dental Association, Southern California Dental Association, Utah State Dental Society, California Pharmaceutical Association, American Pharmaceutical Association, American Conference of Pharmaceutical Faculties, California Nurses' Association, American Nurses' Association, and National Organization for Public Health Nursing, including also many other societies of wide influence soon to make the pilgrimage to the mecca of the convention exposition.

The exposition Auditorium, itself one of the memorable features of the Panama-Pacific International Exposition and a permanent monument to America's achievements, lends itself admirably to the requirements of the medical period. It contains 21 convention halls, the smallest having a seating capacity of 200 and the largest 11,600. In addition there are 19 rooms for committee and section meetings, with a seating capacity of from 30 to 125 each. Centrally located, upon the city's main thoroughfare, which, by the way, is one of the few great gateway thoroughfares of the world's travel, the Auditorium is practically at the doors of all the hotels, and is easily accessible from the exposition grounds. The building is abundantly supplied with lockers, lavatories, checking spaces, telephones, elevators, call bells and excellent heat and ventilation.

In the wide main hall of the Auditorium there will be commercial and scientific exhibits of great interest. These meetings will give the members of the visiting societies an opportunity to study at the exposition exhibits from every part of the world. This includes everything, from the last profound work on the medical science to the wax model of a deceased hookworm; from a model hospital, built and equipped by the United States Public Health and Marine Hospital Service, in charge of Surg. R. M. Woodward, which in the last twelve months has provided treatment for two thousand and twenty-five people, to the latest scientific method of burning garbage. Students of medical development will find these exhibits of intense interest, for nowhere on earth has there been the opportunity for the gathering together of these things, cataloguing them and placing in their proper places as relating to one another so that they may

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be more easily studied. The library is in itself a world's exhibit and a record of the world's achievements in the field of medical endeavor.

This gathering of the medical societies has a peculiar bearing upon the occasion of the celebration of the Panama-Pacific canal opening; for the success of that great work was emphatically made possible by the medical fraternity, which formed the advance guard into what was then an evil country, reeking with poison and swarming with noxious insects. These men deserve to go down in history side by side with the bravest and most dauntless pioneers who have made our country great; for many of them gave their lives, and all of them have given the best that was in them of learning and vitality and the valor of hard work.

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Hernia Adiposa*

By H. S. Mathewson, Surgeon, U. S. Public Health Service.

THE infrequency with which this condition occurs and the perfect simulation of an inguinal hernia makes the following case worthy of record:

N. F., male, aged 36, presented himself at the Marine Hospital office in Milwaukee, Wis., on March 11, 1913, suffering apparently from an ordinary inguinal hernia. He gave a history of a mass having appeared at the external inguinal ring on the right side one year previously. The rupture was caused by overexertion in a cramped position, was sudden and followed by pain both local and abdominal. He was examined six days later by a competent surgeon who made a diagnosis of inguinal hernia and prescribed a truss. This truss he had worn ever since but with discomfort at all times. He had also tried leaving off the truss, but the discomfort was equally great and he resumed the truss as he feared lest the hernia increase in size.

He applied for operative relief as neither with nor without the truss could he follow his vocation without pain and discomfort.

Upon examination a conical mass about the size of a hen's egg was found protruding for a distance of two inches from the right external inguinal ring. It had an impulse on coughing and was reducible.

Operation March 13, 1913, Bassini, for the radical cure of inguinal hernia, ether anesthesia. Upon laying open the inguinal canal an encapsulated lipoma was found, arising by a narrow pedicle from the posterior wall of the inguinal canal at its upper part. There was no hernia. The lipoma was tied off and excised. The wound was closed after the Bassini method, as there appeared to be present a distinct thinning and weakness of the posterior or inner wall of the inguinal canal.

He made a successful recovery from the operation and in due time he was discharged from the hospital.

*Read by title at the Twenty-third Annual Meeting of the Association.

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Unique Case of Gunshot Wound of the Head

By Major James Robb Church, M. C., U. S. A.

On September 26, 1914, Edward J. K—, a boy ten years old, was shot at Fort Preble, Maine, by accidental discharge of a .45 Colt automatic pistol at a range not exceeding fifty feet. He was dressed by the Hospital Corps Sergeant at that post, given .015 mgm. morphine hypodermically and sent by ambulance to the hospital at Fort Williams, two miles distant. I saw him about one hour after he was wounded.

On receipt at Williams he was semi-conscious, restless, very pale, had rectal temperature of 95.8, pulse 58, respiration 28. There was no paralysis.

He was put on the operating table, given strychnine .003 mgm. and atropine .0005 mgm. hypodermically and dressed under chloroform.

The wound of entrance was in the right lower eye lid between the inner canthus and the middle line and about one-half inch of the lid was cleanly punched out. The eye was entirely destroyed and fragments of tissue extruded between the lids. There was escape of brain matter and free oozing hemorrhage. The wound of exit was over the petrous portion of the temporal bone about one-half inch behind the right ear and was a slit one-half inch in length and as clean cut as though made with a knife. There was escape of brain and free oozing hemorrhage from this wound. There was also escape of brain matter and hemorrhage from the external ear.

The wound in the eye was cleaned, considerable brain substance squeezed out of the orbit and boric acid dressing applied. The external ear was cleaned, cleared of brain and packed with wick drain. The wound of exit was enlarged and several pieces of the temporal bone removed, the largest about the size of a thumb nail. Considerable brain matter was removed from the wound and gauze drainage inserted down through the dura into the bullet track of the brain. No attempt was made to check the ooze for fear it would result in intracranial hemorrhage with basal clot. There was extensive radiating fracture of the temporal and occipital bone.

Generous gauze dressing was applied and .015 mgm. morphine given hypodermically.

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At the beginning of the dressing I thought the boy had died and was about to abandon any further dressing, but he rallied under the strychnine and atropine and at the end of the dressing was in fairly good condition.

He vomited freely before anesthesia was started and also before he was fully under it. He was put to bed and hot water bags applied.

At five p. m. that afternoon, five hours after he was shot, temperature was 99 (axilla), pulse 68 and respiration 26. Cerebral irritability developed during the night and persisted for several days. This was controlled by morphine.

At the request of his parents Dr. Richard D. Small of Portland, Me., saw him with me, and the following day we redressed him under chloroform. We then made a horseshoe incision back of the right ear and found extensive fracture of the temporal and occipital bone with several large partially loose fragments which we did not remove. More brain matter which had extruded from the wounds and the ear was removed, packing reinserted through the dura, the exploratory opening closed with catgut and dressing applied.

From then his condition steadily improved. His temperature went to 100 F. on the third day but dropped after a course of salts. The dressings were made every other day without anesthetic and improvement was steady, irritability rapidly diminishing and giving place to apparently normal mentality. The ooze from the wounds was free for thirty hours and then checked. At no time was there any paralysis.

On October 5th he was transferred to the service of Dr. Small at the Maine General Hospital in Portland, Me.

At the date of this writing, October 15, 1914, Dr. Small informs me that the eye tissue has retracted so that the lids nearly close, that the granulations in the external ear are normal but are excessive in the wound of exit, and that the probe shows dead bone at that site as further evidenced by an evening temperature of 99 degrees plus.

I made four X-ray plates but nothing distinctive showed.

I conclude that the bullet, after destroying the eye, penetrated the wall of the orbit external to the foramen, probably shattered the lesser wing of the sphenoid, traversed the right lower frontal and temporo sphenoidal lobes of the brain and broke through the middle ear to its point of exit. Its course was not far from the lateral and sigmoidal sinuses, and had it been on the other side would probably have injured Broca's center, while a higher

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course if it had escaped the sinuses would have impinged on the motor area.

The wound of exit, clean cut and small *and located over dense bony structure,* is paradoxical in view of the recognized fact that this, especially at so short a range, should give an exit with "explosive" effect.

This boy was shot within 50 feet with a .45 calibre jacketed bullet weighing 230 grains, driven at 900 f. s. by 5 grains of smokeless powder and has apparently escaped with the loss of an eye and an ear, directly traversed by the ball. It seems to me a unique case.

I concede everything to the "vis medicatrix naturæ," for aside from clean dressing, rational drainage and stimulation, there was obviously nothing to be done. I believe the administration of morphine was proper since there was no operative procedure in view and no symptoms to cloak.

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Reprints and Translations

An Account of the Surgery and the Surgeons of the American Revolution*

By Walter B. Platt, M. D., F. R. C. S. (Eng.).

WHILE thinking over matters connected with the American Revolution it occurred to me that I had very little definite knowledge concerning the medical and surgical work of the army during that war; the men engaged in it, or of their methods. While it is too much to believe that there are many situated as I was in this regard, there may be physicians to whom such facts as I have been able to gather may be in part new. On this supposition I have ventured to prepare this paper.

It was a matter of interest at that time that I could find no work in the library of the Army Medical Museum under the heading, "Surgery of the American Revolution," or any similar title. After some inquiry I found several books under other names bearing on this subject. They were those of Dr. Harvey Brown on organization mainly; of Toner, dealing principally with the personnel; of Thacher, containing a general sketch of the work of the surgeons, and of Dr. John Jones (1776).†. I believe these four works with their references contain the greater part of the material that is available and reliable.

The beginning of the medical department of the American army in the Revolutionary War, and thus of army surgery in this country on an organized basis, was when a large number of citizens of all classes, and among them a number of physicians, assembled at Cambridge, Mass., on the occasion of the siege of Boston, directly after the battle of Lexington, to lend what aid

*Read before the Johns Hopkins Historical Club and reprinted from the *Johns Hopkins Hospital Bulletin*, March, 1915.

†Historical Notes concerning the Medical Department of the United States Army. By Harvey W. Brown, Assistant Surgeon, U. S. A., 1873.

Medical Men of the Revolution. By Dr. John M. Toner, Philadelphia, 1876.

Thacher's Military Journal during the Revolutionary War, from 1775 to 1783. Second edition, Boston, 1827.

Plain and concise practical remarks on the treatment of wounds and fractures, to which is added an appendix on camp and military hospitals; principally designed for the use of young military and naval surgeons in North America. By Dr. John Jones, Philadelphia, 1776.

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they could. At that time there was nothing in existence to provide for the care of the sick and wounded, and the Second Provincial Congress of Massachusetts, in May, 1775, saw the urgent need of doing something in their behalf.

The first step was taken when they ordered "That the President *pro tem.*, with Drs. Church, Taylor, Holten and Dunsmore, be appointed a committee to examine such persons who are or who may be recommended as surgeons for the army now forming in their Colony," and "*Resolved:* That persons recommended by commanding officers of the several regiments be appointed surgeons of their several regiments provided they appear duly qualified upon examination." Drs. Whiting, Bayliss, Hall and Jones were added to this committee not long afterward. We learn from Thacher's "Military Journal during the American Revolutionary War" that sixteen applied the first day and that ten of these were accepted.

The first military hospital of the war was established directly after the battle of Bunker Hill in a number of private houses, and the man in charge was Dr. John Warren, the brother of Dr. Joseph Warren, who commanded the troops on that occasion. It may be well to state at this time that the words "hospital service," as used in Acts of Congress and formal communications, usually meant medical bureau or department, and not simply a hospital in the ordinary acceptation of the word. Soon after Dr. Isaac Foster of Cambridge succeeded Dr. Warren, and was made Deputy Director General; and other hospitals were established at Roxbury and Watertown, besides a fourth for smallpox cases.

The organization was upon a simple plan. Each hospital had two surgeons and two surgeon's mates, while each regiment had one surgeon and two surgeon's mates. Colonels of the regiments had the nomination of the surgeons, and the surgeons might nominate their mates.

The pay of the hospital surgeons was fixed at eight pounds per month, and that of the mate at four pounds ten shillings per month.

As might be imagined, the plan of nomination by the colonels did not improve the efficiency of the surgeons, although a number of very genial fellows were doubtless brought to the front by this system. The lack of efficiency was so manifest that Congress speedily overhauled the medical department, and General Washington, who saw the extreme importance of maintaining the

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highest excellence in this branch of the army, sent a message to the president of Congress in which he said that there was lack of discipline among the surgeons, that disputes and contentions abounded, and that he would like to have the department put under proper regulations. This spirit of contention, indeed, was the chief bane of the army and hospital surgeons from the beginning to the end of the war, and seemed to be the habit of the time in the profession the world over. I believe this was due less to the character of the physicians than to the condition of medicine at that time, in which there was too much metaphysics and too little physics, and because men were trying to deal with purely physical conditions on a metaphysical basis. Physicians had little that was real to stand upon, apart from the splendid achievements of anatomy, and their foundations in medicine were frequently thrown down because built upon speculation instead of fact; the essence of disease was regarded a matter to be settled by argument, and its treatment was reasoned out in the study instead of in the laboratory or by the bedside. Consequently they argued and disputed, and not being convinced, fought with wordy weapons.

Dr. Benjamin Church, the first head of the hospital department of the army, was a man of great ability, dignity and magnetism, apparently an ardent patriot, and certainly a fine orator. After his appointment, however, he was an uncommon failure from every standpoint. He turned out to be quarrelsome, complaining, and negligent; and worst of all, was finally detected in sending secret messages to the British by the hand of a woman. For this, a crime deserving death, he suffered a long imprisonment. Being finally allowed to leave the country, he sailed for the West Indies on a ship which was lost at sea.

His successor in office was likewise a man of great ability, ripe culture, and considerable experience; for Dr. John Morgan of Philadelphia was a remarkable man. He had been a pupil of John Hunter and returning to America had united with Shippen and the Bonds in founding a medical school. His previous military experience as a surgeon had been acquired in the French and Indian War. On taking charge he found the hospitals full of cases which ought to have been cared for in the field. He cleaned up the service as well as the hospitals, sending back many surgeons to the field, and soldiers, who were able to fight, to the front. A number of surgeons unqualified for the work he discharged, and made every effort to improve the service.

In December, 1775, Congress raised the pay of surgeons to $25

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per month and of surgeon's mates to $18.‡ The campaign against Quebec was not the conspicious success it had been in the French and Indian War; the army found itself short of hospital supplies, with an abundance of cases of smallpox and nostalgia on hand; two diseases we hear more of in the early days of our country than at the present time. However, the health of the troops about Cambridge continued good during the summer of 1775, until the arrival of troops from the Middle and Southern States, when dysentery, typhus and typhoid began to claim many victims. The seat of war was now transferred further south with headquarters at New York, and the hospitals, which had been merely receptacles for the sick, with little to make them habitable, had plenty of supplies.

Morgan would have made a capital hospital superintendent, for his great talent was again shown in cleaning out the hospitals, and reducing the number of inmates in his district to eighty. Once more there was friction between the army surgeons and the hospital surgeons, the former thinking that the latter had an easy berth with plenty of supplies, which they withheld from those in the field. Only army rations were given to the sick and, of course, these were entirely unfit for men suffering with suppurative fever and dysentery.

In the summer of 1776, almost at the outset of the war, there was again a dearth of hospital supplies, about which Dr. Stringer made complaint to General Gates. The limits of authority of the different medical officers were so ill-defined, that friction could not fail to take place constantly, and much of the time which could have been better employed was taken up with complaints of each other. Dr. Stringer went directly to Congress to complain of Dr. Morgan, the final result being the dismissal of both from the service. The surgeons certainly should not have been held responsible for the scarcity of hospital supplies. We learn that the supply of bandages at this time was not sufficient for fifty men; there was no straw for bedding for the sick, and the army was on the verge of mutiny. General Gates wrote that the neglect was shameful, and General Greene complained bitterly of the treatment of his soldiers because of the incompetence of the surgeons.

As far as Dr. Morgan is concerned, he seems to have done what he could, and although finally vindicated by Congress, he died of a broken heart by reason of the injustice done him.

‡This probably refers to the field, not to the hospital, surgeons.

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Dr. Benjamin Rush, the father of American medicine, says he was respected by the officers and beloved by the soldiers, and that "he had an uncommon capacity for acquiring knowledge, a memory extensive and accurate, and was intimately acquainted with the Latin and Greek classics. He had read much in medicine, and in all his pursuits he was indefatigable and persevering. He evinced an amiable and exemplary tenderness toward the sick." His failures, Dr. Rush believed, were due to causes beyond his control.

Dr. Shippen devised a plan of organization taken from that of the British Army and better than the one then in existence, but too complex for American use at that time. It received the commendation of General Washington. It was as follows:

Dr. Wm. Shippen, Jr., was chosen, by unanimous ballot of the thirteen States, Director General of all the military hospitals for the armies of the United States.

Dr. Walter Jones, Physician General of the Hospital in the Middle Department.

Dr. Benj. Rush, Surgeon General of the Hospital in the Middle Department.

Dr. John Cochran, Physician and Surgeon General of the Army in the Middle Department.

Dr. Isaac Foster, Deputy Director General of the Hospital in the Eastern Department.

Dr. Ammi Ruhamah Cutter, Physician General of the Hospital in the Eastern Department.

Dr. Philip Turner, Surgeon General of the Hospital in the Eastern Department.

Dr. William Burnett, Physician and Surgeon General of the army in the Eastern Department.

Dr. Jonathan Potts, Deputy Director General of the Hospital in the Northern Department.

Dr. Malachi Treat, Physician General, in the same.

Dr. Forgue, Surgeon General, in the same.

Dr. John Bartlett, Physician and Surgeon General of the army of the Northern Department.

Washington always recognized the importance of the surgical service of the army and recommended a liberal compensation to surgeons In a letter to John Hancock dated March 14, 1777, he writes: "There is one thing which claims in my opinion the earliest attention of Congress, I mean the pay of regimental surgeons and that of their mates. Those appointments are so essen-

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tial that they cannot be done without. Their pay in the first instance is so low, so inadequate to the services which should be performed, that no man sustaining the character of a gentleman and who has the least ability and skill in the profession can think of accepting it; that of the latter is so mean that no one of the least generosity, sentiment or pretentions to merit can consent to act for it. In a word, these are inconveniences of an interesting nature; they amount to an exclusion of those persons who could perform the duties of those offices, and if not redressed, there is not the smallest probability that any can be prevailed upon to enter them again." Whatever criticism we may make upon General Washington's English, we cannot say that his meaning is ever obscure.

That Washington took a continued interest in the personnel and morale of his surgeons is shown by a letter to Hancock where he writes: "No less attention should be paid to the choice of surgeons than of other officers of the army. They should undergo a regular examination, and if not appointed by the Director General and Surgeons of the hospital, they ought to be subordinate to and governed by his directions. The regimental surgeons I am speaking of, many of whom are very great rascals, countenancing the men in sham complaints to exempt them from duty, and often receiving bribes to certify indispositions with a view to procure discharges or furloughs. In short, there is a continual bickering among them, which tends greatly to the injury of the sick, and will always subsist until the regimental surgeons are made to look up to the Director General of the hospital as a superior. . . . The regimental surgeons are aiming, I am persuaded, to break up the general hospitals, and have in numberless instances drawn for medicines, stores, etc., in the most profuse and extravagant manner for private purposes."

That the regimental surgeons were not the only ones who received hard words, and that officers were not of one mind in this matter, the followng letter of General Smallwood of Maryland to the Council of Safety of his state will show. He says: "The Directors of the general hospitals who supply and provide for the sick, are extremely remiss and inattentive to the well-being and comfort of these unhappy men; out of this train they cannot be taken. I have withdrawn all mine long ago and placed in comfortable houses in the country and supplied with only the common rations. Even this is preferable to the fare of a general hospital. . . . . One good-seasoned and well-trained soldier recovered to health is worth a dozen new recruits, and is often

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easier recovered than to get a new recruit, exclusive of which, this neglect is very discouraging to the soldiery, and must injure the service on new enlistments after the troops go into winter quarters." That the devotees of Mars have always offered oblations to Venus even in the hardest times, the following resolution passed by a committee of Congress in 1778 while the army was stationed at Valley Forge will show: *"Resolved*, That the sum of ten dollars shall be paid by every officer and the sum of four dollars by every soldier, who shall enter or be sent to any hospital to be cured of a venereal disease, which sum shall be deducted out of their pay. . . . . The money so arising to be paid to the Director General or his order, to be appropriated to the purchasing of blankets and shirts for the use of sick soldiers in the hospital." There is no evidence that there was any result from this resolution one way or the other, either in diminishing the number of such cases, or in producing a considerable revenue in consequence of this drastic measure.

Thacher gives us the following picture of an American hospital during the Revolution. This one was at Albany, and the time just after Burgoyne's surrender. "This hospital is now crowded with officers and soldiers from the field of battle; those belonging to the British and Hessian troops are accommodated in the same hospital with our own men and receive equal care and attention. The foreigners are under the care and management of their own surgeons. I have been present at some of their capital operations, and remarked that the English surgeons perform with skill and dexterity; but the Germans, with a few exceptions, do no credit to their profession. Some of them are the most uncouth and clumsy operators I ever witnessed, and appear to be destitute of all sympathy and tenderness towards the suffering patient. Not less than one thousand wounded and sick are now in this city. The Dutch church and several private houses are occupied as hospitals. We have about thirty surgeons and mates, and all are constantly employed."

Exactly what the methods were of operating, and dressing wounds during this war I have not been able to determine. I have not found any accurate and full account of this matter, and do not believe that careful records of operations and of wounds were kept by any one. It is safe to conclude that their methods were at least as good as those of any army of that day, considering the means at their disposal. Apart from anæsthesia, fewer advances had been made in military surgery from the time of the American Revolution to our own war between the states,

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beginning in 1861, than in other branches of medicine. In neither war were gauze dressings used, nor was there any idea of aseptic or antiseptic surgery. In both wars much suppuration was taken as a matter of course. In both it is fair to believe that septicæmia and suppurative fever abounded. Certainly in our late Civil War hospital gangrene occurred, and maggots infesting wounds were seen not infrequently. From the fact that round bullets were exclusively used in the Revolutionary War, it is certain that gunshot wounds were of a somewhat different character from most of those in our Civil War, and it is probable that sabre and bayonet wounds were relatively more common than in our Civil War. In both wars it was observed that wounded soldiers did much the best who were gotten into hospital tents, and out of houses, and that buildings with high roofs were far better for the patients than the best of ordinary houses. It is safe to believe that tetanus was about as frequent in one as in the other.

Here are the names of some of the physicians, surgeon generals and deputies of the different departments from 1776 to 1783 in the Army of the American Revolution:

John Morgan (Pa.).	Philip Turner (Conn.).
John Warren (Mass.).	Jas. Tilton (Del.).
Isaac Foster (Mass.).	Malachi Treat (N. Y.).
Benj. Rush (Pa.).	Moses Bloomfield (N. J.).
John Cochran (Pa.).	Thomas Bond (Pa.).
Jas. Craik (Md.).	James Brown (Md.).
William Eustis (Mass.).	Wm. Brown (Md.).
Dr. Wm. Shippen (Pa.).	Jonathan Potts (Pa.).
Walter Jones (Va.).	Dr. Forgue (Conn.).
Samuel Stringer (Md.).	Dr. Charles McKnight (N. J.).
Wm. Rickman (Va.).	Dr. Wm. Burnett (N. J.).
	Ammi R. Cutter (N. H.).

There were twenty-three who were either surgeon generals or deputies. There were altogether twelve hundred men in the surgical service of the army. A large number of these had already had some experience in military surgery during the French and Indian War, while nearly all of the men at the heads of departments had had exceptional opportunities in European hospitals and schools of medicine.

I will give some details concerning a few of the most prominent men.

Dr. William Shippen, Jr., born in 1736 and died 1808, at the age of 72 years. He graduated at Princeton in 1754 and at Edinburgh in 1761; had previously studied medicine with his father and later with the two Hunters, William Hewson, Sir John Pringle, Cullen and the elder Munroe. He taught anatomy at the College of Philadelphia Medical School and was made chief

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physician for the Flying Camp in July, 1776. On April 11, 1777 he was made director general of all the hospitals in the army. In 1778, his only son died, after which he seemed to lose all interest in his profession and in his medical school, and resigned his commission in June, 1781. Another account says that in 1776 he was made medical director at Trenton, and that later he had entire supervision of all camps on the west bank of the Hudson River.

Samuel Stringer was a native of Maryland. He studied medicine with Dr. Bond of Philadelphia, and served as surgeon throughout the French and Indian War in the British Army. He was made director general of hospitals August 20, 1776. Was discharged January 9, 1777, and died at the age of 83 years.

John Morgan, M. D., F. R. S., was born in Philadelphia in 1735. He was educated in Maryland, graduated in Philadelphia in 1754, and studied medicine with a Dr. Redman in that city. He served as surgeon in the French and Indian War. In 1760 he went to France, and later attended lectures and dissections by William Hunter, graduating at Edinburgh in 1763. He studied under both the Munroes, Cullen, Rutherford, Hope and others. He knew Voltaire and Morgagni. He was made an F. R. S. in London, and was appointed professor of theory and practice in the Medical College of Philadelphia. He died in 1789 at the age of only 54 years. The cause of his death was grief and disappointment at the injustice done him by his dismissal from the army A sketch of his work has already been given.

Dr. William Rickman was made physician and director general of hospitals in Virginia, later director general of hospitals in the Southern Department. He was charged with neglecting to care for his patients from Virginia and North Carolina at Alexandria, but the charges were dismissed.

Benjamin Rush, perhaps the most prominent of all our early American physicians, was born in 1745, and was graduated at Princeton in 1760. He took his M. D. in Edinburgh in 1768, practiced in the London and Paris hospitals, and returning to America was made professor of chemistry in the medical school in Philadelphia. From the first he was a great patriot and represented Pennsylvania in Congress (Colonial) in 1776. He is well known as one of the signers of the Declaration of Independence. He was widely known, not only as a physician but as a public-spirited man and a citizen. He was not fond of surgery, but accepted the position of physician general to the army. He received but little lustre from his military career, and was con-

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stantly complaining to Congress about his superiors. It is said that General Washington thought he had written anonymous letters and he was suspected of a connection with the wretched Conway cabal (1777). However this may be, Washington made him director of the Mint, and he held this position for fourteen years. (See American Revolution, by Fiske.) He was one of the founders of Dickinson College. In 1811 the Emperor of Russia sent him a gold ring as a testimonial of appreciation of his professional ability. He died April 14, 1813, at the age of 68 years.

Philip Turner was born in Norwich, Conn., in 1740, and was one of the few of the prominent men of his group whose studies were carried on in this country exclusively. He served in the French and Indian War as assistant surgeon to a Provincial regiment at Ticonderoga. Returning in 1783 to Norwich, he married his preceptor's daughter. He soon gained a reputation as a skillful operative surgeon. He was the first surgeon of Connecticut troops at the siege of Boston, and is said to have been the most skillful operator in the Army of the Revolution. Dr. Shippen remarked that he had never seen any one who excelled him as an operator, in Europe or America. He was successful in eighteen out of twenty lithotomies, a large per cent in those days, and a good one in any generation. His fame, rather than any influence, gained him the position of director general in the reorganization of the medical department of the army. From motives of policy it was deemed best to reconsider the vote, and Dr. Shippen was then given the position.

William Burnett graduated in 1745 at the College of New Jersey, then located at Newark. He seems to have been a gentleman of culture.

Dr. Walter Jones of Northampton County, Virginia, appears to have been a man of parts. He graduated at Edinburgh in 1769-1770, and was made physician general of the army. He found the office little to his taste, for he resigned after holding the position for two months and returned to his private practice. He was a graduate of St. Mary's College, Virginia, in 1760.

Charles McKnight was a native of New Jersey, born October 10, 1750. He was graduated at Princeton, in 1771, pursued his studies with Dr. Shippen, and was appointed senior surgeon of the Flying Hospital of the Middle Department. At the end of the war he went to New York City to reside, where he had the distinction of being one of the first physicians in New York to use a carriage. He was professor of anatomy in Columbia Col-

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lege, and published a successful result of an operation for extra-uterine pregnancy.

Ammi Cutter was a native of Maine, born 1730, and died 1819, aged 89 years. He was graduated from Harvard College in 1752, and served during the French and Indian War in 1758. He was also given the honorary degree of M. D. by Harvard College.

Dr. William Brown of Maryland was the successor of Benjamin Rush. He graduated at Edinburgh in 1768. His private practice and home were in Alexandria, Va. The physicians of Maryland in Revolutionary days, like some of their successors of today, were fond of politics. In the former days they were generally looked to for advice in the Councils of Safety, and among these we find the names of Dr. John Archer of Harford County, of Ephraim Howard of Anne Arundel County and of Richard Brooks of Prince George County.

In the list of these men, there are one or two more points of especial interest. At the time of his death Dr. Rush was 68 years of age; Dr. Shippen 72 years of age; Dr. Cutter 89 years of age; Dr. Turner 75 years of age; Dr. Stringer 83 years of age; Dr. Morgan 58 years of age.

Concerning their early education, Drs. Shippen, Rush, Jones, McKnight, Cutter and Morgan had both academic and medical degrees. Dr. Burnett had only an academic degree, and Dr. Turner, one of the best of them all, had neither.

It is clear that with the experience they had gained in the French and Indian War these men were most valuable to direct the medical department of the army, and also it is obvious that an army, which was short of clothing and shoes at times, could not be expected to have at all times an abundance of medical supplies. Our greatest regret is that more complete records and details of their work have not been left behind, for plenty of work was done and most of it under great disadvantages.

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Editorial

FOR VALOUR

"Medical Department: Brig. Gen. William C. Gorgas, S. G., to be Surgeon General, with rank of Major General, with rank from March 4, 1915."

This announcement among the confirmations by the Senate of appointments in the Army, marks an epoch in medico-military history, an unprecedented acknowledgment by the military authorities of the value of medical achievements. From the sanitary regeneration of Cuba and the hygienic salvation of the Panama Canal Zone, to his most recent exploit, the abolition of pneumonia among the miners of the Rand in South Africa, the whole world knows what has been done by the modest, unassuming, scientific gentleman who honors the Medical Corps of the Army by being at its head. In all these labors, General Gorgas has attempted to efface himself and to give credit for results to his efficient aids, but this courteous endeavor has not blinded the people. They know to whose master mind, to whose unswerving will, to whose diplomatic administrative power, are due these great achievements which have conserved lives by the thousand, have made miasmic and unendurable regions of the earth not only habitable but ideally hygienic, and have saved untold millions to the commerce of the world.

It is not strange that the world acclaims Gorgas a conqueror. It is natural that the medical world should accord him high renown for what he has accomplished. This latest honor conferred on General Gorgas is unique in a two-fold way: first, the War Department, which only a very few years ago, after strenuous effort on the part of the surgeons of the Army, grudgingly allowed them to be classed as members of a staff corps, has now, by creating General Gorgas a Major General and Surgeon General *in perpetuo,* recognized the value of the Medical Corps as an efficiency producer to the Army; and, second, the honor has been conferred during the lifetime of the recipient.

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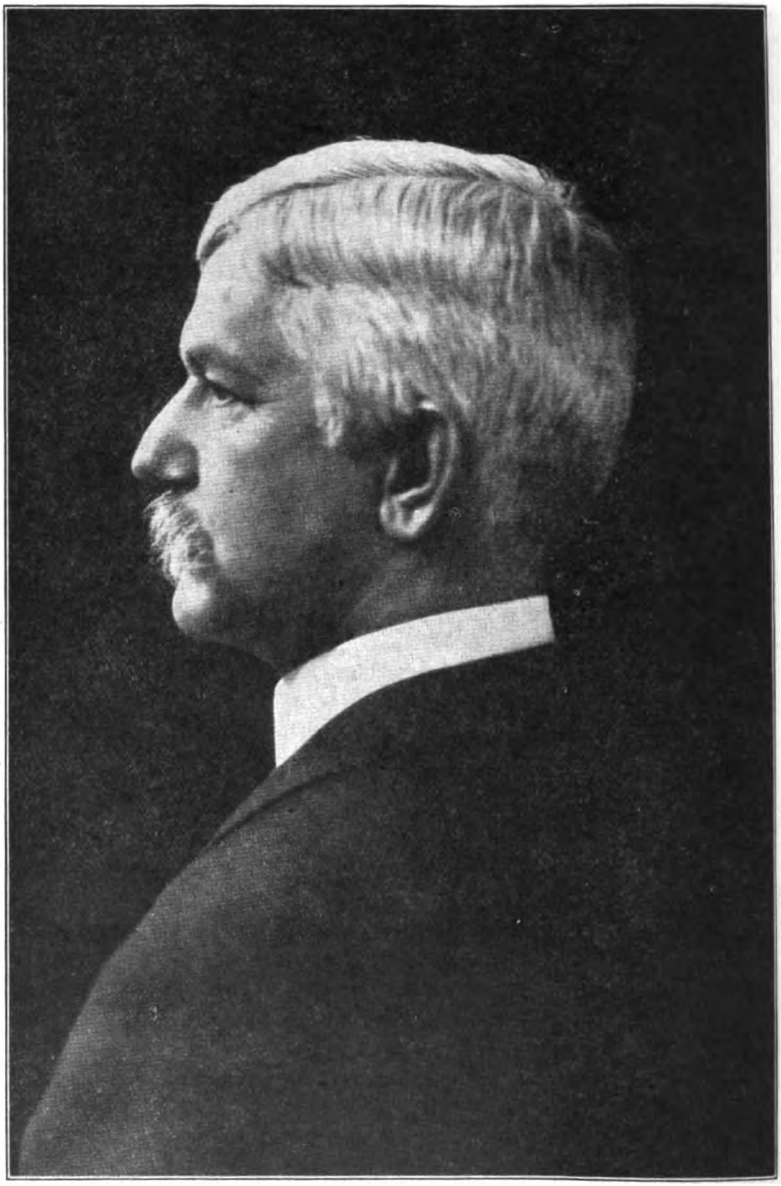

Major General William Crawford Gorgas, Surgeon General, U. S. Arms.

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In days past we have seen tardy acknowledgment given, usually after death, to such men as Letterman, Reed, Carroll and Lazear, but marked honor to a medical officer during his life is an evidence that the hitherto almost thankless task of health propagandism is now beginning to be appreciated.

The nation should honor those who thus do it valiant service. Though they work not in the spectacular glory of the battle-line, their combat with the insidious forces of disease and death, while less conspicuous, is none the less valorous, for on the result of that combat depends the efficiency of the fighting units.

THE NEEDS OF THE EVER READY

The annual report of the Surgeon General of the Navy, and the record of the testimony given by the Surgeon General before the House Naval Committee regarding the needs of the service, demonstrate clearly the shorthandedness of the Medical Department of the Navy and incidentally the shortsightedness of Congress in not remedying this grave defect. Dr. Braisted in his testimony stated that the personnel of the Medical Department had not been increased since 1903, when an addition of 150 was authorized. In 1915, for the first time in many years, the Medical Corps will be practically full, provided the entire class at the Naval Medical School succeeds in graduating. At present the personnel of the Medical Corps of the Navy consists of 347 regular medical officers and 25 Acting Assistant Surgeons, a total of 372. If every ship of the Navy were put into commission and every need fulfilled, 440 medical officers would be required, showing that there is at present a shortage of 68 medical officers. While under peace conditions the necessary work can be done with this force, under war conditions (and the Navy is supposed to be always on a war footing) there would be a lamentable undermanning by reason of the increased demands. Even with the aid of the Medical Reserve Corps this shortage could not be filled by trained men, and in such an emergency there would be no time to make naval surgeons out of willing but untrained medical practitioners.

The Personnel Bill carries with it certain features which will greatly benefit the younger men in the Medical Corps whose chances for promotion into the upper grade without some relief

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are very slight. There is also a provision for the relief of the Hospital Corps which will permit an increase in the number of Pharmacists, an increase badly needed, and which will go far toward increasing the efficiency of the Medical Department as a whole.

The Surgeon General in his report urges the necessity of a hospital ship to accompany each fleet, and cites as an argument the early days of the occupation of Vera Cruz when the *Solace*, the only hospital ship in the Navy, was forced to return North for necessary repairs to machinery, leaving the fleet and the forces on shore without the facilities provided by a hospital ship. This circumstance not only illustrates the position of a fleet deprived of a hospital ship when the presence of such a ship is of most importance, but justifies the strong recommendation that a second hospital ship be provided for the Atlantic Fleet.

Frequently the fleet is divided, and with only one hospital ship in service, one or the other portion of the fleet must necessarily do without. During the recent activities of our fleet in Mexican waters, the Pacific Fleet had no proper hospital facilities and the need of a hospital ship was great. It was necessary to send many patients north on colliers, which usually carry no medical officers, and on account of the shortage in the Medical Corps it was not possible even to furnish a medical officer for each collier.

For several years the Bureau of Medicine and Surgery has been working on plans for the rapid transformation of a merchant ship into a hospital ship, but the Vera Cruz situation demonstrated the weakness of such plans, for when the ship was needed it was sought also by the War Department and the Bureau of Supplies and Accounts of the Navy, and authorization for its purchase and adaptation to hospital needs was delayed from day to day, until finally the crisis was over. Had the purchase been authorized, at least six weeks would have been required to alter and equip the ship. The inevitable conclusion must be reached that the only way to have hospital ships in emergencies is to provide them in advance, but with all this need so clearly set forth by the Surgeon General in his report and before the Naval Committee, Congress has cut out the item providing for an additional hospital ship. A cartoon which appeared in the Philadelphia *Evening Ledger* after the reduction of the naval appropriation had been announced, could well be applied to the portion of that appropriation which should have been made for the needs of the Bureau of Medicine and Surgery. It represents Uncle Sam standing in a room;

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through the window the rain is seen falling heavily. Uncle Sam holds on his finger a single rubber sandal, which he has taken out of a box labeled, "Naval Appropriations," and the legend is, "Blame it! I ordered boots!"

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Current Literature

FRANCE

Bulletin de l'Académie de Médicine

February 2, 1915.

1 *Frozen Feet in the Army. M. Temoin.
2 The Treatment of Wounds of Nerves by Projectiles. Discussion.
3 Complete Section of the Median Nerve by a Projectile, Nerve Suture and Restoration of Function on the Fourth Day. Salva Mercadé.

1. **Frozen Feet in the Army, by Dr. Temoin.* The author says that for some weeks previous to his visiting all the adjacent beds in his hospital at Bourges had been filled by wounded soldiers whose sole injury was frozen feet, and that the number of such injuries was increasing from day to day. On investigation of conditions and careful examination of the frozen parts, Dr. Temoin was struck, first, with the exact similitude of the lesions. Second, that it was found that the men had stood with feet in water and in mud which proved that the thermometer must have registered above freezing. It is well known that fishermen pass whole nights in winter with legs immersed in water without having frozen feet.

The symptoms of the men suffering from frozen feet were all identical. After a prolonged sojourn in the trenches transformed into marshes or rivulets, the men suffered first from a painful but not unsupportable swelling of the feet; then from the constriction of their boots contracting on becoming saturated. When the shoes were finally removed the soldiers saw to their great surprise that the toes, and a part of the foot, sometimes the whole foot, were swollen, black, without sensation, or that they showed black or violet spots resembling sloughing spots or a phlyctaena like that of slight burns. On arrival at hospital many have the toes completely black and already separated from the healthy parts by a suppurating furrow like the gangrene of diabetics, while the feet of those having less severe lesions have gangrenous spots scattered over the entire surface.

Dr. Temoin discusses the situation fully and concludes that

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none of the soldiers suffered from frozen feet and that the lesions were solely gangrenous and due to stoppage of circulation caused by compression, and that several days are necessary to produce these lesions. He also concludes that such lesions may be avoided either by diminishing the length of time spent in trenches or by avoiding all constriction of the leg or foot and by compelling the men to take off their shoes at frequent intervals or to at least unlace their boots and gaiters.

The prophylaxis for such lesions consists: (1) In greasing the feet to prevent maceration; (2) in diminishing the length of time a man must remain in the trenches; (3) in careful surveillance to prevent any impeding of the circulation of the leg or the foot during the time the men are standing in the water.

February 23, 1915.

4 Report of the Commission on Measures for the Prevention of Alcoholism. Gilbert Ballet.
5 *The Diagnostic and Prognostic Value of the Electrical Examination of Cut or Compressed Nerves. Maurice Mendelssohn.
6 The Specific Serum Treatment of Wounds. Leclainche and Vallie.
7 Inopportune Operations on Wounds of War. E. Valude.

5. ***The Diagnostic and Prognostic Value of the Electrical Examination of Cut or Compressed Nerves, by Dr. Maurice Mendelssohn.*** The writer concludes that the diagnostic value of electrical examination is of small importance in sections of nerves with simple symptomatology, but that it is of considerable importance in cases of nerve sections and compressions with a complex symptomatology. In such cases the functional examination is not sufficient to form a decisive diagnosis, and ought always to be corroborated by a very detailed electrical examination. Such are cases complicated by motor difficulties of psychic nature or articular origin. In other words the diagnostic value of electric examination in sections of nerves and compressions is relative and can be profitably used only in certain special and abnormal cases. The prognostic value, on the contrary, is of capital importance in all cases where there is a question of the continuity of a nerve.

ENGLAND.

The Lancet.

February 13, 1915.

8 *A Contribution to the Study of Shell Shock. Chas. S. Myers.
9 A Note on the Treatment of Gunshot Wounds of the Femur. Cuthbert Wallace.

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10 Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation. Georges Dreyer, E. W. Ainley Walker and Alexander G. Gibson.

8. **A Contribution to the Study of Shell Shock, by Capt. Charles S. Myers, R. A. M. C.,* is an account of three cases of shell shock of soldiers not wounded, in which the symptoms were loss of memory, amblyopia, anosmia, reduced acuity of taste, constipation, and, in one case, anuria. As a result of treatment by rest and suggestion these patients gradually improved. Hypnosis was employed in one instance. These cases appear to constitute a definite class among the so-called shell shock casualties. The shells appear to have burst with considerable noise, scattering much dust, but this was not attended by the production of odor. It is difficult to understand why hearing should have been so slightly affected and why the dissociated complex should be confined to sight, smell, taste and memory. There appears to be a close relation between these cases and those of hysterical origin.

February 20, 1915.

11 *An Address on Gunshot Wounds of the Head. Sir Victor Horsley.
12 The Operative Treatment of Bullet Wounds Involving the Vertebral Canal and Associated with Complete Paralysis. L. J. J. Muskens.
13 A Case of Acute Tetanus with Recovery. A. G. Whitehorne-Cole and W. M. S. Robinson.

11. **An Address on Gunshot Wounds of the Head, by Sir Victor Horsley, Captain R. A. M. C.,* discusses the question of how the actual injury to the brain by high velocity bullets is produced. The maximal disturbance is produced as soon as the bullet at its highest velocity is surrounded by the largest amount of wet tissue. The forces producing the injury relate to the dual movement of the projectile, first its progression forward, and, second, its spin around a central axis, which is given it by the rifling. He then discusses the question of the so-called dumdum bullet injuries, which he believes may be due not to the use of soft-nosed projectiles, but to the overturning of the elongated steel jacketed projectile during its passage through the tissues. He then takes up the questions of concussions without penetration of the skull, the rise of intra-cranial pressure, sepsis, and aseptic and septic hernia of the brain, and closes with a consideration of the functional disturbances of the brain due to loss of cerebral substance.

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February 27, 1915.

14 *The Hunterian Oration on the Treatment of Wounds in War. Sir W. Watson Cheyne.

15 Colloidal Iodine Associated with Serum Treatment in Tetanus. Dr. Auregan.

14. **The Hunterian Oration on the Treatment of Wounds in War, by Sir W. Watson Cheyne,* has little to do with John Hunter, whose connection with military surgery was confined to his service with a British expedition to Belleisle in 1761 and to a few months at the Portuguese seat of war in the following year. Cheyne takes up the question of iodine in paste and also in association with iodide of potassium, and his views are decidedly revolutionary, for he comes to the conclusion that iodine is useless in the treatment of wounds in war, as he has observed several septic cases which had been freely treated with iodine soon after the wounds were inflicted. He also states that disinfection, even with absolute alcohol, is unsatisfactory and should be abandoned. Cheyne finds, as a result of experimentation, that the use of 30 per cent pastes of carbolic acid and tricresol prevented suppuration for four days at least, and suggests that by the additional use of antitetanic serum the occurrence of tetanus may also be prevented. By this plan he believes that not only may a temporary arrest of sepsis be attained, but that in some cases even complete disinfection of wounds may be secured.

March 6, 1915.

16 A Consideration of Some Elementary Principles Involved in the Treatment of Soil-Contaminated Wounds. Alexander G. R. Foulerton.

17 Two Cases of Traumatic Hæmoperitoneum. C. Hamilton Whiteford.

British Medical Journal

February 13, 1915.

18 *Surgical Experiences at the Anglo-American Hospital, Wimereux, France. Hugh Lett and J. H. Morris-Jones.

19 *Medical Treatment of Men in the New Armies. General Article.

18. **Surgical Experiences at the Anglo-American Hospital, Wimereux, France, by Hugh Lett, M. B., F. R. C. S., and J. H. Morris-Jones, L. R. C. P., L. R. C. S. E.,* relate to cases that have been admitted and treated at the Anglo-American Hospital (Lady Hadfield's at Wimereux). The great majority of wounds

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were in septic condition, but no tetanus was observed. The general treatment of wounds was the painting with iodine, dry dressing and rest. Antiseptic vaccine was used in a few cases. All cases of lacerated wounds were treated under anesthesia and in many cases continuing saline irrigation was used with good effect.

19. **Medical Treatment of Men in the New Armies* is a reply to letters received from medical men in various parts of Great Britain criticizing the treatment of men in camp in Great Britain. The criticisms have reference chiefly to antityphoid inoculation, vaccination against smallpox and alleged difficulties in obtaining suitable drugs. In regard to the first point, it is clear that if any carelessness exists it is due to contravention of the very careful instructions issued by the War Office and which are here detailed. The same may be said of smallpox. The difficulties as regards drugs are due largely to the unwillingness of medical officers to be satisfied with the drugs in the medical supply table. This table is supposed to contain all mediaments necessary for the wants of the sick.

The duties of medical officers attached for duty at regiments are indicated in a circular recently issued. This provides that soldiers seriously ill shall be moved to the nearest territorial hospital or military hospital; that soldiers so injured or ill as to be unfit to travel shall be admitted to the nearest local civil hospital. The medical officer of a regiment is advised to co-operate with the medical health officer of the district where the regiment is located, on all matters regarding the health of troops, and to notify through official channels the occurrence of infectious disease among troops and make arrangements through local authorities for the isolation of cases in the Civil Isolation Hospital. Officers in charge of medical units are directed to keep record of the personal cleanliness and general health of troops, the sufficiency, quality and condition of their clothing, including foot-gear, the provision of proper drying arrangements, the superintendence of food supply, the arrangements for baths. inspection of bedding, the collection and disposal of refuse and inspection of latrines and urinals.

The Journal of State Medicine

March, 1915.

19½. *Government and Civil and Military Sanitation in the Tropics. Sir Donald Ross.

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19½. **Government and Civil and Military Sanitation in the Tropics, by Sir Donald Ross,* is the first of the two Chadwick public lectures on the relations between administration and public sanitation. After a historical review of tropical sanitation, which began at the time when Spain, Portugal, France, Holland and England had developed their navies sufficiently to enable them to explore tropical coasts and then to make conquests inland, he mentions the great sanitary reformation which was started in England, and also became the starting point for a similar reformation in the tropics. He then gives the seven commandments of sanitary science on which modern sanitation stands, namely:

1. A pure piped water supply.
2. Piped sewerage, or at least a very efficient conservancy.
3. The principle of no vermin.
4. Proper attention to food supply, markets and public buildings, housing, schools and waste waters.
5. Special measures against special diseases, both endemic and epidemic, such as vaccination against smallpox and quinine for malaria.
6. An adequate sanitary law.
7. Adequate sanitary organization.

INDIA.

The Indian Medical Gazette

December, 1914.

20 *Training of Senior Indian Medical Service Officers in the Home Commands. P. Hehir.
21 Studies in Malaria. H. Stott.
22 The Treatment of Suppuration by Pus Inoculation and the Treatment of Pneumonia by Subcutaneous Injections of the Patient's Own Blood. V. Nesfield.

20. **Training of Senior Indian Medical Service Officers in the Home Commands, by Col. P. Hehir, I. M. S., Acting Deputy Director Medical Service in India,* elaborates a program for the training of Medical Service Officers while on leave in England. This program includes the acquisition of a knowledge of the organization and administration of the Home Army and especially of its medical services, routine work in the office of a Deputy Director of Medical Services and staff work in general; system of filing and keeping records, executive and administrative work in military hospitals; training of all ranks of the Royal Army

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Medical Corps in all its stages; physical training of all arms of the army, and physical training of competent officers; present day equipment of the soldiers; sanitation of barracks and lines; peace training in sanitation of all ranks, bakery, dairy, slaughter house, veterinary training; all aspects of field service training, including that of peace times, work in the field, mobilization of personnel and equipment of medical units; component parts of the different field medical units, their custody, checking and replenishment in peace time, and utilization of mechanical transport in the evacuation of wounded.

JAPAN.

The Sei-I-Kwai.

January 10, 1915.

23 *On Asphyxia of Living Bodies Which Contain Chrolophile Substance. B. Takeyama and Y. Minamizuki.
24 *Concerning Symmetrical Mucous Cysts of the Lower Extremity. R. Malsuoka.
25 *On Primary Carcinoma of the Liver. M. Ozaki.
26 *On the Action of Emetine Chloride on the Straw Amœba and Its Cysts. S. Toda.
27 *Two Examples of Rare Wounds (Trauma). M. Aoki.

23. **On Asphyxia of Living Bodies which Contain Chrolophile Substance, by Drs. B. Takeyama and Y. Minamizuki.* This is a technical and, to the laboratory man, an interesting discussion of the methods and the results of the authors' investigations on the above subject. Literature and similar experiments of other investigators are referred to and the writers then give their own experiments and results, showing the same by means of statements and tables. This article is of no special value to the clinican and is rather too much in a special line to be of much interest to the average reader.

24. **Concerning Symmetrical Mucous Cysts of the Lower Extremity, by Dr. R. Matsuoka.* This is simply a report of a case of the author's. He gives as a reason for reporting the same the fact that such cysts are raely seen in the lower extremities, and says that he has only seen or heard of one other case. The family, previous, present and clinical history are given. The operation for removal is described and the case followed throughout.

25. **On Primary Carcinoma of the Liver, by Dr. M. Ozaki.* This is a long discussion of the above subject, in which the

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author states that while primary cancer is comparatively rare in the liver in Europe, he has met with it so often in Japan that he does not think it rare in that country. He then takes up a brief literature followed by a detailed discussion of the 12 cases that he has studied in his clinic and lecture room. He tabulates them and classifies them and gives the post mortem findings, etc. Nothing new as to the origin of cancer is presented herein.

26. **On the Action of Emetine Chloride on the Straw Amoeba and Its Cysts, by Dr. S. Toda.* This is a discussion of the action of the above mentioned drug on various dilutions of the amoeba and under various conditions, and it is accompanied by a table showing a number of experiments of the author. He concludes the article by adding that he tried, for the sake of comparison, similar experiments with carbolic acid. .

27. **Two Examples of Rare Wounds (Trauma), by Assistant Surgeon First Class M. Aoki.* The author states that as he thinks these two kinds of wounds are very rare they are worthy of report, and hence after permission he gives a detailed account of the same. One is a wound of the abdominal aorta with no external wound, that is, it is a rupture of the same, and the other is a crushing of the pelvis. The writer merely goes on to detail the case, and outside of the possible rareness of them there is nothing of special note about the cases.

NORWAY

Norsk Tidsskrift for Militaermedicin.

No. 1, Vol. XVIII, 1914.

28 *Anthropological Investigations. Brigade Surgeon Holvdan Bryn.
29 Diseases Incident to Military Training. Capt. I. Kobra.
30 Detail to Tuberculosis Sanitariums. Capt. E. Jespersen.

28. **Anthropological Investigations, by Brigade Surgeon Holvdan Bryn,* is an interesting study from an anthropological standpoint of the recruit yield of various districts in Norway relative to the ratio of the population and their serviceability as recruits. He takes as a basis the District of Tröndelagen.

This district has 5,700 square k. m., hence is larger than Holland and Belgium combined. The entire district has a very variable population, consisting of tall and sturdy mountaineers, comparatively small-sized men, city bred, agricultural workers and fishermen. Racially one finds here and there the typically

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pure Viking, light-haired and blue-eyed, as well as many showing an admixture. Some authors have claimed that there will be a deficiency in the recruiting yield owing to the emigration from Norway to the United States and other countries. Bryn, however, has undertaken a series of most painstaking anthropological investigations, all of which have been carefully tabulated. Upon this evidence he shows beyond any doubt that the recruiting material, instead of deteriorating, has improved in the last two decades from all points of view.

While the author does not enter into any detailed speculation explaining this result, he attributes the maintenance of physical vigor to the preservation of racial purity.

SWEDEN

Tidskrift i Militär Hälsovard

No. 1, 1914.

31 Sanitation and Care of the Sick in the Navy. G. Asplund.

32 Report from the Swedish Ambulance Company in Greece During the Second Balkan War.

UNITED STATES.

Medical Times.

February, 1915.

33 *The Identification System of the United States Army. Chas. E Woodruff.

34 The Medical Reserve Corps of the U. S. Army. (Special Article.)

33. **The Identification System of the United States Army, by Lieut, Col. Charles E. Woodruff, M. C., U. S. A. (ret).*, takes up the question of fraudulent enlistment and re-enlistment. In addition to the records of missing teeth, permanent scars, tattooings and other markings, together with the height, age, color of eyes and hair, further safeguards were adopted as the result of the deliberations of a board of officers in 1906. These safeguards consisted of photographs and the taking of finger prints. Since this system was adopted 1,908 attempts at fraudulent enlistment have been detected and the finger print records and photographs have led to the apprehension of many criminals who enlisted in the army to escape detection, and have undoubtedly deterred many criminals from attempting to enter the army.

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The Urologic and Cutaneous Review

March, 1915.

35 *The Treatment of Bullet and Other Wounds by Ionization. W. Knowsley Sibley.

36 The Dosage of X-Rays. W. Hampson.

37 Some Continental Methods of Treating Syphilis. J. L. Bunch.

35. **The Treatment of Bullet and Other Wounds by Ionization, by W. Knowsley Sibley.* As the result of his experience as a dermatologist in the treatment of the diseases of the skin and subcutaneous issues, the author is convinced that the best and most rapid tratment for bullet and other wounds is by means of those electrical processes which convey their influence through the superficial layers to the deeper tissues, that is by ionization, which is the term used to designate the introduction of any drug soluble in water, through the skin or superfical layers of tissues by means of the constant or galvanic current of electricity.

New York Medical Journal.

February 13, 1915.

39 An American Surgeon with the French Red Cross. Daniel R. Robert.

March 6, 1915.

40 Sanitation in Panama. Surg. Gen. William C. Gorgas, U. S. A.

41 The American Hospital at Paris.

The Lancet-Clinic Cincinnati

February 13, 1915.

42 Conditions Contributory to the Prevalence of Typhoid Fever as Noted in a Sanitary Survey of Ohio River Cities. W. H. Frost.

43 The Value of Blood Pressure Readings in Examinations for Life Insurance. J. W. Fisher.

The Medical Council

March, 1915.

44 The Surgical Service of the Civil War. Henry O. Marcy.

45 Malarial Hematuria. J. D. Bennett.

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American Red Cross Magazine

February, 1915.

46 The Japanese Red Cross in the Tsingtau Campaign in the European War. Eliza R. Skidmore.

47 *India's St. John Ambulance in the European Struggle. Major R. J. Blackham.

48 The Kaiserin and the Red Cross. Curtis Brown.

49 The Noble Work of a Noble Woman. William P. Kennedy.

47. ***India's St. John Ambulance in the European Struggle, by Major R. J. Blackham of the Indian Medical Service, directing head of the Indian Red Cross,*** is a detailed account of the war relief preparations in India by this efficiently managed organization. The resources were mobilized promptly after the receipt of the outbreak of war, a depot was organized at Bombay, where goods were received, classified, suitably packed and handed over to the military authorities for dispatch to the troops on active service. Within two months the St. John Red Cross depot had shipped or had at the docks 315 British units, 139 Indian units, 5 one hundred bed units, 87 miscellaneous units, 50 units at the war gift's depot, and 50 units at Karachi. Of these units 502 were ten bed units, sufficient for 5,020 beds. In addition to the service for the hospitals in the theatre of war, hospital ships are plying regularly between Bombay and Europe and ambulance trains are in regular service in India. Rest camps and rest stations on the railways have also been established.

Journal of The American Medical Association

February 27, 1915.

48 *Typhoid Fever. E. H. Trowbridge, B. A. Finkle and Elizabeth M. Barnard.

49 *Buyo Cheek Cancer. G. G. Davis.

48. ***Typhoid Fever, by E. H. Trowbridge, E. A. Finkle and Elizabeth M. Barnard,*** Faribault, Minn., is the report of a typhoid epidemic in the Minnesota School for Feeble-Minded and Colony, in which a number of cases had occurred among patients who had undergone, after a previous epidemic, antityphoid inoculation. Several cases are given in detail, and the factors which might have influenced the epidemic and brought about its unexpected results, are given. So far as the authors have been able

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to ascertain, there is no similar case on record in the literature. The infection was traced to a dairyman, who had not received prophylactic treatment, and who had himself been infected by a milker, one of the inmates. The population of the institution had one of their chief sources of food supply thus contaminated with typhoid bacilli continuously for several months. The anti-typhoid vaccine used was prepared by the State Board of Health, and used within the specified time limit and kept at the proper temperature. The method of administration, the dosage and the time interval were observed, as recommended by the State Board, except that 10 minims instead of 7½ were given at the first inoculation. The authors conclude that it is evident that typhoid vaccine in some cases fails for immunity or confers only partial immunity in some cases. They sum up their conclusions as follows: "1. Typhoid fever may be contracted by individuals who have received the prophylactic and who subsequently show a positive Widal. 2. The course of the disease is not appreciably shortened in vaccinated individuals. 3. The mortality is markedly reduced among protected persons. 4. Protected persons having typhoid fever fail to give many of the classical symptoms of the disease. 5. The development of paratyphoid is not prevented by the use of the typhoid prophylactic. 6. The degree of immunity conferred by the prophylactic in some cases fails to prevent the development of typhoid, when the individual has been subject to repeated exposure. 7. The Widal reaction as a criterion of the presence of immunity is of uncertain value.

49. **Buyo Cheek Cancer, by G. G. Davis.* The frequency of cancer of the cheek in Filipino women impressed itself on the attention of the author in his early practice in the Philippine Islands, and hence he has made a study of the subject as regards the possibility of the habit of buyo chewing so universal among elderly persons in the Philippines, as a cause. He has studied the various constituents of the buyo chew. The buyo leaves (*Piper betle*, L.), which are extensively cultivated for the purpose in the Philippine Islands, and the betel nut (*Areca catechu*), which is extensively used throughout the East Indies. Lime is a regular ingredient of buyo chew, being spread on the buyo leaf before it is wrapped around the disk of nut. Its purpose is to give a pleasant sweet taste to the chew, which without it would be bitter and not so desirable. It also has a chemical action on the betel nut and leaf, producing red sputum and blackening the teeth. Tobacco leaves have long been a constituent of the buyo

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chew, especially since the American occupation. Recently a higher tariff has been put on plug tobacco.

The history of buyo chewing is given. It has existed in the tropical countries for many centuries. In his forty-nine cases of cheek cancer, he finds a positive history of buyo chewing in forty, or 81 per cent, and in no case could it be excluded. The length of time of chewing before the cancer appearance varies from three to sixty years, and the average is thirty-five years. The women chew more than the men, and have the largest number of cancers. It is essentially a sickness of advanced years, and in twenty cases, a total of those investigated as to this point, the site of the lesion corresponded definitely to the position in which the patient was accustomed to hold the chew in the mouth. Davis believes the lime is the essential or direct cause, but the chemical properties of the leaves and nut may be predisposing factors.

The clinical histories are strikingly similar. The first symptom noted is an involvement of the inner aspect of the cheek with a small elevated growth of the mucosa. This ulcerates early. Pain is a constant symptom, frequently slight, but often accompanied by severe referred pain at the angle of the jaw or parotid or submaxillary regions. Sometimes a burning sensation is complained of. The tumor growth progresses slowly, takes on a cauliflower-like shape, and soon projects into the oral cavity between the teeth, making mastication painful or impossible. Bleeding is common and abscess formation frequently is a complication. Sinuses may form, opening either internally or externally, and accompanied with a foul odor.

The secondary involvement includes the upper gums, tonsils and angle of the mouth. The regional submaxillary lymph glands become enlarged and indurated, but general metastasis is rare. Microscopically, the structure is that of an epithelioma or carcinoma, originating from pavement epithelium. The prognosis is not favorable, even after operation. In no case of his series was a permanent cure obtained. Early cases are rarely seen. Palliative procedures may give temporary relief in mastication, etc. In his conclusions, Davis says: Cancer of the cheek, so commonly seen in the Philippine Islands, is caused by chewing buyo, and the active agent is the lime. He advises an educational campaign to teach the evil results of buyo chewing and encouraging of prophylaxis to be given by complete stopping of the habit. The article is illustrated.

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March 6, 1915.

50 *Public Health Work. M. J. Rosenau.
51 Tetanus. T. H. Kelly.
52 A Monilia Found in Certain Cases of Sprue. Bailey Ashford.

50. **Public Health Work, by M. J. Rosenau,* Boston, says that in preparing for public health work a satisfactory knowledge of the medical as well as related sciences is necessary, although while the practitioner recognizes and treats disease, the public health officer is interested in the prevention of disease. Therefore, public health work is a separate profession, needing special training. A certificate or diploma in public health, he thinks, should represent a minimum of four years' special study, equivalent to college grade; the Doctor of Public Health degree to be limited to those who have had longer training and have in addition carried on original research in some branch of sanitation and hygiene. He describes the work of the Harvard School for Health Officers, its requirements and course of study. It grants the degree of Doctor of Public Health only on the ground of long study and high attainment in the special branch of learning manifested not only by examination, but also by the thesis. He gives a list of titles indicating the work of the candidates for such a degree.

March 13, 1915.

53 Past and Present Health Methods in Louisiana. Oscar Dowling.

March 20, 1915.

54 Pathology of Oroya Fever. R. P. Strong and E. E. Tyzzer.
55 *Prevalence of Syphilis Among the Inmates of the Government Hospital for the Insane. E. B. Vedder and W. H. Hough.
56 *The Treatment of Intestinal Amœbiasis. Glenn I. Jones.

55. **Prevalence of Syphilis Among the Inmates of the Government Hospital for the Insane, by Capt. E. B. Vedder, M. C., U. S. A., and Dr. Wm. H. Hough,* gives the results of an investigation of the prevalence of syphilis in an institution which receives its cases from the Army, Navy and District of Columbia. From the study of the total 1,283 cases the authors conclude that: "1. Syphilis among the white women is comparatively rare. 2. Among white men the presence of syphilis has been demonstrated in 20 per cent of the cases. 3. We estimate that at least 30 per cent of white males in this institution are syphilitic. 4. At least

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10 per cent of the insanity in this institution is directly attributable to syphilis." Vedder and Hough believe that there is need of more attention being given to the diagnosis and treatment of syphilis in hospitals for the insane.

56. **The Treatment of Intestinal Amœbiasis, by Capt. Glenn I. Jones, M. C., U. S. A.,* speaks of the confusion which still exists in the interpretation of the symptoms and signs leading to an accurate diagnosis and prognosis of amœbiasis. Amœbiasis may exist without dysentery, and dysentery may exist for months or years after amœbic ulceration without amœbiasis. In ipecac and its alkaloid we have a specific in this disease, but Jones is convinced from his experience with fifty cases that emetin hydrochlorid, if used alone, will not cure amœbic dysentery nor prevent relapses. The same is true of ipecac alone, but he has found that emetin given by hypodermic, accompanied or followed by the use of ipecac given by the mouth, will be curative in most cases. It seems that emetin kills the amœbas in the blood stream, but has little effect on those in the intestinal canal or the outer edges of the ulcerations, while ipecac has directly the opposite action.

The method of administration used in the Manila Hospital is thus described: "Emetin hydrochlorid 0.008 gm. by hypodermic ten days (twice a day for four days and once a day for six days). Ipecac started about the eighth day with from 1.5 to 2 gm. doses given at bedtime, continued for three consecutive nights and thereafter decreased by 0.3 gm. each consecutive night. The disagreeable effects of the ipecacuanha were never manifested. It is quite necessary to precede the administration of ipecacuanha by tinctura opii in from 0.6 to gm. doses." After this treatment, each case should be considered one of ulcerative colitis, and treated accordingly, using every effort to enhance resistance, by change of climate, tonics, etc.

Infantry Journal

March-April, 1915.

57 *Field Water Bag. W. J. L. Lyster.

57. **Field Water Bag, by Major W. J. L. Lyster, M. C., U. S. A.,* is a brief illustrated abstract of the article on "Sterilization of Drinking Water by Calcium Hypochlorid in the Field," by the same author, which appeared in the March issue of THE MILITARY SURGEON.

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Annals of Surgery

March, 1915.

58 The Prevention of Post-operative Adhesions in the Peritoneal Cavity. J. E. Sweet, R. H. Chaney and H. L. Wilson.

60 *Endothelioma of the Intercarotid Body. L. J. Owen.

60. **Endothelioma of the Intercarotid Body, by Capt. L. J. Owen, M. C., U. S. A.,* is the report of an interesting case of tumor of the neck which on operation was found to be an endothelioma arising from an intercarotid rest.

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Reviews

PAGES D'HISTOIRE, 1914, a series of twenty-one brochures dealing with various phases of the Pan-European war from the French standpoint. Librairie Berger-Levrault, Paris and Nancy, 1914.

1. THE AMBUSH.—The Imperative Decision—The Ultimatum of Austria—The Feeling in Europe.

2. THE DIPLOMATIC TENSION.—Attempts at Mediation—The Declaration of War Against Servia—Austria, Russian and German Mobilization.

3. THE MOBILIZATION OF AUGUST 2 TO 4.—The Message to the French Nation—Violation of the Frontiers—The German Ultimatum.

4. THE DAY OF AUGUST 4.—The Message to Parliament—Extraordinary Session—Comments of the Principal Journals.

5. WAR, AUGUST 5 TO 7.—The Fourth Fifth and Sixth Days of Mobilization—The Battle Liege—Skirmishes in Lorraine—First Naval Prizes.

6, 7, 8. OFFICIAL COMMUNIQUES AFTER THE DECLARATION OF WAR FROM AUGUST 5 TO SEPTEMBER 30.—Chronological Series of Dispatches of the French Government—Official Documents.

9. EXTRACTS FROM BULLETINS OF THE ARMIES OF THE REPUBLIC.—The First Paris Bulletins from August 15 to September 3.

10. EXTRACTS FROM BULLETINS OF THE ARMIES OF THE REPUBLIC.—The First Bordeaux Bulletins from September 4 to October 21.

11. QUOTATIONS FROM THE ORDER OF THE DAY FROM AUGUST 8 TO SEPTEMBER 18.

12. OFFICIAL COMMUNIQUES AFTER THE DECLARATION OF WAR FROM OCTOBER 1 TO 31.—Chronological Series of Dispatches from the French Government.

13 and 14. QUOTATIONS FROM THE ORDER OF THE DAY FROM SEPTEMBER 19 TO OCTOBER 14.

15. DIPLOMATIC POURPARLERS FROM JULY 23 TO AUGUST 4.—The English Blue Book.

16 and 17. QUOTATIONS FROM THE ORDER OF THE DAY, OCTOBER 15 TO NOVEMBER 1.

18. OFFICIAL COMMUNIQUES AFTER DECLARATION OF WAR FROM NOVEMBER 1 TO NOVEMBER 30.—Chronological Series of Dispatches from the French Government—Official Résumé of Operations.

19. QUOTATIONS FROM THE ORDER OF THE DAY, NOVEMBER 6 TO 10.

20. DIPLOMATIC POURPARLERS.—The Belgian Gray Book, July 24 to August 29.

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21. DIPLOMATIC POURPARLERS.—The Russian Orange Book, July 10 to 23, July 24 to August 6.

These brochures, which are published at a cost of 60 centimes, or 12 cents each, give in short form a history of the beginnings of the war from the standpoint of France, and as they are transcripts of official records, will be exceedingly valuable to students of European history after the termination of the war.

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News of the Services

ARMY

A daughter was born at Fort Dupont, Del., March 13, to Capt. and Mrs. H. S. Purnell.

A son was born at Fort Dupont, Del., March 11, to Lieut. and Mrs. J. S. C. Fielden, Jr.

Dr. Otto Juettner, Cincinnati, has been commissioned a lieutenant in the Medical Reserve Corps.

Dr. Joseph H. Page, New Orleans, has been appointed first lieutenant in the Medical Reserve Corps.

Dr. Arnott K. Duncan, New Orleans, has been appointed first lieutenant in the Medical Reserve Corps.

A daughter was born on March 14, 1915, to Capt. and Mrs. George E. Pariseau at Fort Hancock, N. J.

Lieut. Oscar Dowling, M. R. C., U. S. A., was married to Mrs. Lula Tindall George of Monroe, La., March 16.

Maj. M. A. W. Shockley began the inspection of the Medical Corps of the Kentucky National Guard on February 11.

A daughter, Marian Elizabeth, was born to Capt. W. A. and Mrs. Wickline at Jefferson Barracks, Mo., February 18, 1915.

Maj. and Mrs. James L. Bevans announce the engagement of their daughter, Dorothy Miliken Bevans, to Capt. Floyd Kramer.

Maj. and Mrs. Robert U. Patterson entertained at dinner recently at the Army and Navy Club in honor of Maj. Gen. and Mrs. Gorgas.

A buffet supper was given by Maj. and Mrs. Gideon Van Poole at Scofield Barracks, Hawaii, February 10, in honor of Gen. and Mrs. John Wisser.

The Army Appropriation Bill as reported February 11 by the Senate Military Affairs Committee provides $85,000 for hospital care of garrisons in the Canal Zone.

The Surgeon General of the Army and Mrs. Gorgas gave a dinner in honor of the Secretary of War and Mrs. Garrison at the Army and Navy Club, March 25.

Dr. Charles R. Castlen, Washington, formerly first lieutenant in the Medical Corps, has been appointed first lieutenant in the Medical Corps from February 23, 1915.

Lieut. S. L. Chappelle is relieved from further duty at Fort Bliss, Texas, and has been ordered to report for duty to the commanding officer at Fort Sam Houston, Texas.

Maj. and Mrs. F. T. Woodbury, who have been in residence at Columbus Barracks, sailed for the Canal Zone on March 1, where Major Woodbury has been assigned to duty with the 29th Infantry.

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A son, Francis Joseph Torney, Jr., grandson to the late Surgeon General Torney, was born to Lieutenant and Mrs. Francis J. Torney, Coast Artillery, U. S. A., at the Presidio of San Francisco, January 26, 1915.

We regret to announce the death at Port Sam Houston, Tex., on February 25, of Mrs. Ada Iddings Thomason, wife of Capt. Henry D. Thomason, first medical officer on duty with the Division of Militia Affairs.

Mrs. George M. Sternberg, wife of former Surgeon General Sternberg, was a hostess at a large reception given in Washington on March 3 in honor of Mrs. William Cumming Story, President General of the N. S. D. A. R.

Maj. Gen. William C. Gorgas, Surgeon General of the Army, delivered an address before the Mississippi Society at the Confederate Memorial Hall, Vermont Avenue, Washington, D. C., on the subject "Sanitation at Panama."

An impostor impersonating Capt. Corydon G. Snow is forging that officer's name to checks and is conducting his operations in eastern cities, including New York and Wasihngton, while Capt. Snow is on duty on the Pacific Coast.

The Army and Navy General Hospital Hot Springs General Hospital, Arkansas, is said to be taxed to its full capacity. All the accommodations for officers are taken and Congress should be asked to take steps to enlarge the capacity of the hospital.

Maj. James F. Hall has been relieved from duty at Fort Strong, Mass., and directed to proceed to the Walter Reed General Hospital, Takoma Park, D. C., and assume command of Field Hospital No. 6, relieving Maj. Paul S. Halloran, who on being relieved will proceed to Fort Sill, Okla., for duty.

The Medical Department of the Army has been authorized on approval of the Secretary of War and at rates not less than 25 per cent of the contract prices paid to sell for cash to the American National Red Cross such medical supplies and equipments as can be spared without detriment to the medical service.

Capt. Edgar C. Jones has been relieved from duty at Madison Barracks, N. Y., and directed to proceed to Walter Reed General Hospital, Takoma Park, D. C., and assume command of Ambulance Company No. 6, relieving Capt. Percy L. Jones, who will then report to the commanding officer Walter Reed General Hospital for duty.

Lieut. William S. Thayer, M. R. C., has been ordered to active duty and to proceed to the Army Medical School, Washington, D. C., for temporary duty as "special professor," for the purpose of delivering lectures, and on the completion of such duty will stand relieved from active duty upon return to his home, Baltimore, Md.

An examination of candidates for appointment to the Dental Corps of the Army will take place on April 12, at Jefferson Barracks, Mo.; Governor's Island, N. Y.; Columbus Barracks, O., and San Francisco, Cal. There are eleven vacancies in the Corps and thirty-two candidates have been notified that they may take the examination.

Among the additional provisions voted by the Senate is one whereby sections 1222 and 1224, revised statues, shall not apply to officers of the Medical Corps who, with the approval of the President, shall be detailed

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or authorized to render professional services for or under the local governments of the insular possessions of the United States.

Capt. William H. Smith has been relieved from further duty with Field Hospital No. 3, Galveston, Texas, and further duty at Fort Sheridan, Ill., and directed to proceed to the Walter Reed General Hospital, Takoma Park, D. C., and report to the commanding officer, Field Hospital No. 6, for duty, relieving Capt. Ralph H. Goldthwaite, who upon being thus relieved will report to the commanding officer Walter Reed General Hospital for duty.

The following physicians have passed a preliminary examination for appointment in the Medical Corps of the Army and will attend the session of the Army Medical School, Washington, which begins October 1: Arden Freer, New York City, a graduate of the New York University and Bellevue Hospital Medical College, New York, born at Neversink, N. Y., December 27, 1888; John Stuart Gaul, Laceyville, Pa., a graduate of the Medical-Chirurgical College of Philadelphia, 1913, born at Philadelphia, May 28, 1888; Charles George Rutter, Chicago, a graduate of the Northwestern University Medical School, 1913, born in Chicago, November 5, 1885; Harvard Clayton Moore, Portland, Ore., a graduate from the University of Oregon, 1913, born at Bar Harbor, Me., December 7, 1887; and William Frederick Rice, Washington, D. C., a graduate of the University of Maryland, Baltimore, 1913, born at Salisbury, N. C., June 21, 1885.

Honors to Col. George E. Bushnell.

Col. George E. Bushnell, Medical Corps, U. S. A., commandant of the United States General Hospital, Fort Bayard, New Mexico (the Army sanatorium for the tuberculous officers and enlisted men) was signally honored by the Chamber of Commerce, Silver City, New Mexico, Friday, February 26, at a banquet given to him and the members of his staff.

Col. Bushnell has been in charge of Fort Bayard for the past eight years and during that time has converted this old frontier army post into the finest institution of its kind in the world. The government has expended over one million dollars in the construction of beautiful buildings, sewer and water systems, and the plant stands as a monument to the efficiency and hard labor of this modest and unassuming officer.

Dr. Earl Sprague Bullock, medical director of the New Mexico Cottage Sanatorium, spoke of Colonel Bushnell's medical work and his scientific achievements along the lines of tuberculosis.

Chaplain W. K. Lloyd, U. S. A., told of the high regard in which the Colonel was held by the officers and men of the Army.

Hon. Percy Wilson, mayor of Silver City, paid a glowing tribute to the old army surgeons who, in the pioneer days, were the only doctors in the frontier country, and to the work of the Medical Corps of the Army in discovering the cause of yellow fever and hookworn and for the sanitation of the Canal Zone which made possible the building of the Panama Canal. He proposed the toast, which the audience gave standing, "Colonel Bushnell as a soldier, a man, a humanitarian and a scientist."

Colonel Bushnell responded in a short speech, thanking the Chamber of Commerce for the honor they had conferred upon him, and asserting that the tribute was due not so much to his own efforts as to those of the Medical Corps of the Army of which he was proud to be a member.

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NAVY

P. A. Surg. H. W. Cole has been detached from the *San Diego* and ordered to the *Colorado*.

Med. Dir. George F. Winslow and wife are spending the winter at the Alcazar, St. Augustine, Fla.

Dr. W. E. Stevens has been commissioned Assistant Surgeon, M. R. C., to date from January 23, 1915.

Surg. H. C. Curl has been detached from the *Maryland* and directed to proceed home and await orders.

Mrs. Tennie H. Ledbetter, mother of Surg. R. E. Ledbetter, died in Washington, D. C., February 3.

Asst. Surg. A. T. Weston, M. R. C., has been detached from the Marine Recruiting Station at New York.

Med. Inspr. and Mrs. George A. Lung entertained at a tea at the torpedo station at Newport, R. I., February 5.

P. A. Surg. R. Butts has been detached from the *Monterey* and ordered home by the April transport to await orders.

James Buchanan Henry, father of Surg. Reginald A. Buchanan Henry, died at Cocoanut Grove, Fla., February 17.

P. A. Surg. William L. Irvine was operated on for appendicitis at the Naval Hospital at Newport, R. I., February 18.

P. A. Surg. Ausey Hamilton Robnett was married to Miss Mary Louise Manifor at Las Animas, Colo., January 21, 1915.

Asst. Surg. R. F. Jones has been detached from the Naval Hospital at Canacao and ordered home to await orders.

P. A. Surg. H. F. Lawrence has been detached from the Newport Hospital and ordered to the New York Hospital.

Asst. Surg. E. H. Lanning has been detached from the *Saratoga* and ordered home by the April 15 transport to await orders.

A daughter, Rebecca Wetherell Fiske, was born to Surgeon and Mrs. Charles N. Fiske at San Francisco on February 26, 1915.

A son, William David Halsey, was born to P. A. Surg. and Mrs. W. Howard Halsey at Milwaukee, Wis., February 2, 1915.

Surg. C. E. Ryder has been detached from the *Cincinnati* and ordered to proceed home by the March 15 transport and await orders.

P. A. Surg. John Bowdoin Mears was married on January 23, 1915, to Miss Eulalie Mary, daughter of Dr. and Mrs. G. P. Kahle, Elkton, Va.

Mrs. William C. Braisted, wife of Surg. Gen. Braisted, gave an elaborate luncheon to one hundred and fifty guests at Rauscher's on February 26.

Mrs. Francis S. Nash, wife of Med. Dir. Nash, gave a luncheon in honor of Mrs. William Jennings Bryan in Washington on February 26.

Asst. Surg. P. B. Ledbetter has been detached from the Naval Hospital at Olongapo, P. I., and directed to return home by the April transport and await orders.

Surg. L. L. Von Wedekind, who has been in command of the U. S. Hospital Ship *Solace*, has been ordered to duty at the Marine Recruiting Station at New York.

A son, Edward Allen, was born at Woodbury, N. J., March 9, to Mr. and Mrs. Edward C. Scofield, son of the late Medical Director, Rear Admiral Walter K. Scofield.

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Mrs. Francis S. Nash, wife of Medical Director Nash, gave a luncheon of twelve covers in honor of Mrs. Daniels, wife of the Secretary of the Navy in Washington, March 12.

Dr. Stuart Harry Benton, father of Surgeon Frederick L. Benton and a well-known physician of the Bedford section of Brooklyn, died at his home in that city on March 2, aged 69.

P. A. Surg. William Edward Eaton and Miss Fanny Houwe Fiske were married at Washington, D. C., February 25, 1915. The bridegroom is on duty in the office of the Surgeon General.

Asst. Surg. J. C. Parham has been commissioned passed assistant surgeon to date from July 7, 1914. Surg. Parham was detached from the *St. Louis* April 1, and directed home to await orders.

Among the cadets at the Naval Academy, Annapolis, who are sons of medical men are Norman P. Earle, son of Dr. Charles A. Earle, Desplaines, Ill., and Charles Brown Tuley, son of Dr. Henry Enos Tuley, Louisville.

P. A. Surg. S. L. Higgins, in a report to the Surgeon General, recommends that khaki or neutral colored clothing be supplied to the Navy for landing parties. He believes that white clothing is too easily penetrated by the suns rays and is therefore unsuitable in the tropics.

Med. Inspr. L. L. von Wedekind in a recent article in the *Medical Record* advocates the general drinking of distilled water on the ground that water so prepared is freed from the mineral salts which otherwise might accumulate in the system. He believes in forming the habit of drinking distilled water.

Medical Corps Legislation.

In the summary of the bill to increase the efficiency of the personnel of the Navy, sections 25 to 28, inclusive, are devoted to the Medical Corps, and these sections are cited below:

Section 25.

States the distribution in rank, abolishes the grades of assistant surgeon and passed assistant surgeon, prescribes that the officers now in those grades shall be commissioned surgeon with the rank they now hold, that the increase in the grade of medical inspector shall be distributed over a period of five years and that nothing herein contained shall increase the total number of officers on the active list of the medical corps.

Section 26.

Provides for the advancement of medical officers with the rank of lieutenant (junior grade) as now prescribed by law, and that those with the rank of lieutenant shall be advanced after nine years' service with that rank, thus bringing them to the rank of lieutenant commander after 12 years' service. The ranks of lieutenant (junior grade) and lieutenant, as in the case of line officers who serve 12 years in those ranks. Surgeons with less than 22 years' service in the corps, or with less than 10 years' service with the rank of lieutenant commander, if the seniors in grade are promoted to fill vacancies in the order of seniority, subject to the provisions of existing law. When the average service of the senior twelve surgeons amounts to that stated above this section prescribes that any vacancies that may exist shall be filled as prescribed in the following section.

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Section 27.

When the senior twelve surgeons have the requisite amount of service it is herein prescribed that marks for professional record, knowledge and reputation shall be determined in their cases, and that those whose marks so obtained are highest shall be promoted in the order of their seniority to fill the vacancies then existing and that those whose marks do not entitle them to fill one of the limited number of vacancies shall be transferred to the active reserve list.

Section 28.

In order to afford an opportunity for advancement for at least one-half of the surgeons whose services entitle them to an opportunity for promotion and who are examined under the provisions of the preceding section, the bill prescribes that the President may select and transfer to the active reserve list such number of senior officers as may be necessary to cause vacancies for one-half of the officers examined. Not more than three medical directors and not more than three medical inspectors may be so transferred in any one year. This restriction is intended to produce a uniform flow of promotion in the senior grades, while the transfers will also produce that result in the lower grades.

PUBLIC HEALTH SERVICE

Asst. Surg. C. L. Williams has been relieved in the Hygienic Laboratory.

Surg. John D. Long has been detailed as Chief Quarantine Officer and appointed Director of Health of the Philippine Islands.

P. A. Surg. Wade Hampton Frost was married to Miss Susan Haxall of Loudoun County, Virginia, near Middleburg, February 10.

Surg. G. M. Guiteras in addition to his present duties has been directed to assume charge of the quarantine station at Key West, Fla.

Asst. Surg. Gen. W. G. Stimpson has been directed to proceed to Crisfield, Md., to inspect the operations of the Service at that port.

Surg. S. B. Grubbs has been authorized to deliver a series of six lectures on tropical diseases to the Junior Class of the Medical Department of the University of Louisville.

Asst. Surg. Gen. J. W. Kerr was detailed to represent the Service at the meeting of the Central Committee on National Health Organizations at New York City on March 13.

Epidemiologist A. W. Freeman has been directed to proceed to Washington, D. C., and report to Surg. L. L. Lumsden, in charge of field investigations of rural sanitation, for temporary duty.

Surg. L. D. Fricks has been directed to stop at Joplin, Mo., en route to Victor, Mont., for conference with P. A. Surg. A. J. Lanza and for perfecting plans for the conduct of sanitary studies of the zinc industry.

Surg. J. H. White has been ordered to report to Asst. Surg. Gen. A. H. Glennan, chairman of the Board of Commissioned Medical Officers, for examination to determine his fitness for promotion to the grade of Senior Surgeon.

Surg. J. A. Nydegger has been directed to proceed by way of Jacksonville, Fla., to Manatee County, Florida, to make an investigation of the

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prevalence of trachoma among school children and to make observations relative to the sanitation of schools.

P. A. Surg. R. A. Kearny was detailed as recorder of the Board of Medical Officers which convened at the Medical Hospital of New Orleans, La., for the examination of applicants for appointment as Assistant Surgeon, vice Surg. R. H. Creel, relieved.

Surg. Victor G. Heiser has been relieved from duty as chief quarantine officer and director of health of the Philippine Islands and directed to proceed to San Francisco, Cal., and report arrival. Surg. Heiser has been granted one year's leave of absence without pay from March 1, 1915.

Asst. Surg. Gen. A. H. Glennan has been detailed as chairman; Surg. J. W. Schereschewsky as member, and P. A. Surg. E. A. Sweet as recorder of the Board of Commissioned Officers convened to meet at the Bureau to examine Surg. J. H. White to determine his fitness to the promotion of Senior Surgeon.

John R. Murlin, Ph.D., assistant professor of Physiology in Cornell University, Medical College, New York City, has been granted leave of absence to accept a temporary appointment as biochemist at the Pellagra Hospital of the Public Health Service, Spartanburg, S. C. Dr. Andrew Hunter, who recently resigned his position of biochemist, has accepted the professorship of Pathological Chemistry in the Toronto University.

The Cutter lecture given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lecture on Preventive Medicine, and that they should be delivered at Boston and be free to the medical profession and the press, will be delivered by Surg. Joseph Goldberger on Friday, April 2, at 5 p. m., at Harvard Medical School. The subject of the lecture this year is "Diet and Pellagra."

NATIONAL GUARD

Capt. F. O. Fredrickson, M. C., Ill. N. G., assigned Field Hospital No. 1, has assumed the duties of executive officer, vice Blech, promoted.

Lieut. L. E. Inman, M. C., Okla. N. G., Oklahoma City, has passed his promotional examination, and has been commissioned Captain, Medical Corps.

Field Hospital No. 2, Ill. N. G., is to be organized in Chicago. It will be in command of Maj. Gustavus M. Blech, recently executive officer of Field Hospital No. 1.

Capt. Gustavus M. Blech, M. C., Ill. N. G., having successfully passed the prescribed promotional examination, has been commissioned Major M. C., Ill. N. G., to date from March 12.

Maj. J. William Voss, Mass. N. G., was retired as Lieutenant Colonel on December 29, 1914, after over 18 years of service. Major Voss served as medical officer with the Second Corps of Cadets and also with the battalion of Field Artillery.

Maj. Robert W. Forster, Mass. N. G., was discharged at his own request on account of increase in business on December 16, 1914. Major Forster was commissioned First Lieutenant, M. C., April 30, 1908, Captain, February 8, 1909, and Major, July 13, 1913. Major Forster was assigned to the 8th Regiment of Infantry.

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A bill has been introduced into the Connecticut legislature and was reported favorably by the Committee on Military Affairs to the Senate on March 24. This bill provides that in addition to the staff as already appointed four officers of the line from the National Guard shall be detailed to serve as additional aids.

Lieut. Col. A. S. Stayer, M. C., Pa. N. G., for many years a leading practitioner of Altoona, Pa., and an efficient officer of the Medical Corps of the National Guard, for several terms a member of the Altoona school board, has accepted a position as medical officer of the National Home for Disabled Volunteer Soldiers, Gogue, Me., and assumed his new duties last month.

Col. Henry Bacon, M. C., Fla. N. G., Surgeon General of Florida, appointed Colonel and Surgeon General Florida State Troops, April 5, 1889, and reappointed Colonel in the Medical Corps on the reorganization of the Organized Militia of the State as the National Guard of Florida, was appointed Brigadier General on the retired list at his own request on January 27, after having served nearly twenty-five years in the grade of Colonel.

Maj. Harry H. Hartung, Mass. N. G., was retired at his own request on March 2, 1915, after 12 years of service. Major Hartung originally enlisted as a private in "K" Battery, First Regiment Heavy Artillery, in June, 1903. Ou December 8, 1903, he was commissioned as First Lieutenant in the Ambulance Company, and on January 5, 1905, was transferred to the Fifth Infantry as Assistant Surgeon. On October 31, 1906, was transferred to the Corps of Coast Artillery, and was promoted to Captain, June 20, 1907, and to Major Medical Corps, April 1, 1909.

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General News

Lectures on Military Hygiene.—A course of nine lectures on "The Health of the Army in the Field" was given at the Royal Army Medical College, Millbank, London, S. W., by Major P. S. Lelean, F. R. C. S., D. P. H., R. A. M. C., between February 22 and March 12. This course is an introduction to the problems of hygiene for forces in the field for qualified medical men without military experience, combatant officers about to retreat to the front and others interested in the subject. The subjects dealt with were the hygiene of active service, sickness in the army, organization and administration in the field, water and water supply and conservacy on active service.

The McGill Over-Seas Hospital.—This organization, which is composed of present and former members of the medical faculty of McGill University, Montreal, together with dressers, orderlies and nurses, has been officially accepted by the authorities, and will go to Europe in April. It will be located at one of the military bases and will have accommodations for one thousand patients. The hospital will be in command of Dr. H. S. Burkitt, Montreal, Dean of the Medical Faculty, who will have as his assistant Maj. C. P. Howard, head of the Department of Medicine of the State University of Iowa, Iowa City, Ia. The personnel will consist of about two hundred officers and men and about fifty to sixty graduate nurses from the Royal Victoria Hospital and Montreal General Hospital.

WAR NOTES

Wounds of Modern Rifles.—Lieut. T. M. Nair, M. D., a member of the staff of the British Hospital Ship *Madras,* engaged in transporting wounded Indian soldiers from East Africa to India, in the consideration of wounds made by modern rifles, says: "While the velocity of a bullet fired from a modern rifle is enormous, it can easily be turned aside, and especially at close range." As illustration he cites a case of a man struck over the heart; in this case the bullet struck a rib and instead of smashing, it was diverted and traveled around the rib, embedding itself in the muscles of the back. In another case in which a man was struck in the thigh, the bullet was diverted, entered the under leg, was again diverted, and came out, thus making two wounds in each leg.

The American Ambulance, Paris.—The illustration which appears below is from a phothograph recently received from Paris by THE MILITARY SURGEON. It shows the central portion of the left wing of the Lycée Pasteur, Neuilly, near Paris, which is now used as the American Hospital, and is doing wonderfully good work. In front of the hospital are parked a number of the motor ambulances, of which there are now

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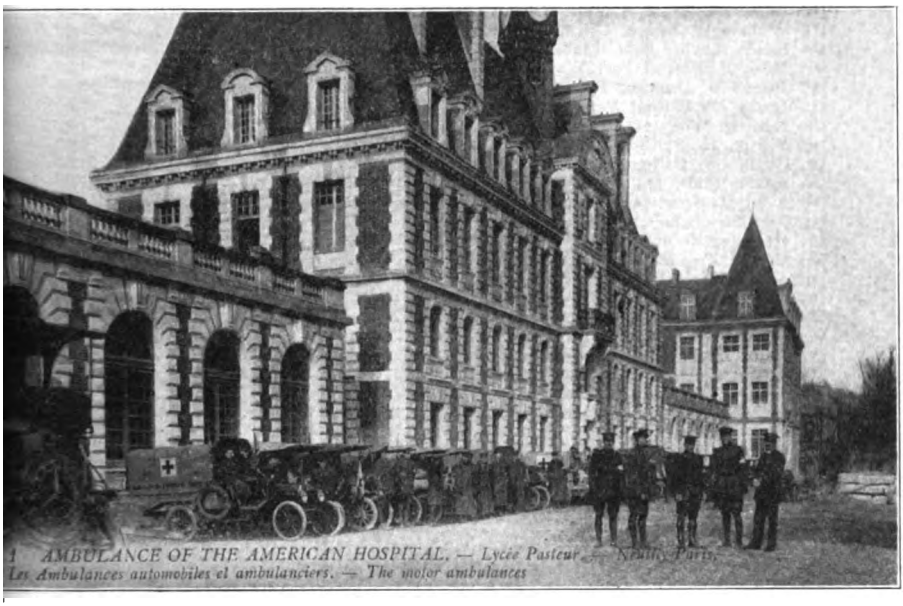
fifty in active service between the hospital and the front. These are the ambulances which rendered such wonderful service at the time of the first advance of the German army in its attempt to take Paris. The personnel of the Ambulance Corps wear the olive drab uniform, like that of the united services, and all are volunteers. The corps is acting in connection with the French army service, and its work in first aid and transportation of wounded is deserving of the greatest praise.



1 AMBULANCE OF THE AMERICAN HOSPITAL. — Lycée Pasteur — Neuilly, Paris.
Les Ambulances automobiles et ambulanciers. — The motor ambulances

Twice Decorated for Valor.—Lieut. Arthur Martin Leake, R. A. M. C., who was awarded the Victoria Cross on May 13, 1902, has been granted a Clasp for most conspicuous bravery in the present campaign in Europe. The original decoration was given because, then Surgeon Captain Leake, at the battle of Vlakfontein, during the Boer War in South Africa, went to a wounded man and attended to him under a heavy fire at 100 yards range. He then went to the assistance of a wounded officer, and while aiding him was shot three times, but continued his work of mercy until he rolled over thoroughly exhausted. At this point eight men were wounded, but Surgeon Captain Leake refused water until all had been cared for. The almost unprecedented award of a Clasp to the Victoria Cross was made to Lieutenant Leake for "most conspicuous bravery and devotion to duty throughout the campaign, especially during the period October 29 to November 8, 1914, near Zonnebecke, in rescuing, while exposed to constant fire, a large number of the wounded who were lying close to the enemy's trenches."

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BELGIAN PHYSICIANS' RELIEF FUND

The report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending February 27, 1915, lists the following contributions:

The Monmouth Medical Club, Monmouth, Ill.	$ 10.00
The Adams Co. Med. Soc., Quincy, Ill.	42.00
Dr. Charles H. Smith, Uniontown, Pa.	25.00
Dr. Frederick J. Walter, Daytona, Fla.	10.00
Dr. Austin C. Brant, Canton, Ohio.	5.00
Dr. William D. Byrne, Chicago, Ill.	5.00
Dr. Simon Levin, Lake Linden, Mich.	5.00
Dr. Miles F. Porter, Fort Wayne, Ind.	5.00
Dr. Joseph L. Duncan, Pittsburgh, Pa.	10.00
Dr. James M. Patton, Vandergrift, Pa.	1.00
Dr. Neri B. Williams, Perkasie, Pa.	1.00
Dr. Wilson F. Phillips, Dorchester, Mass.	5.00
Dr. Donald C. Balfour, Rochester, Minn.	25.00
Dr. Austin Flint, Jr., New York, N. Y.	25.00
Dr. Evan T. Steadman, Hoboken, N. J.	10.00
Dr. John B. Nichols, Washington, D. C.	10.00
Dr. Hermann G. Klotz, New York, N. Y.	5.00
Dr. George P. Coopernail, Bedford, N. Y.	5.00
Dr. Kay I. Sanes, Pittsburgh, Pa.	25.00
Dr. Herman F. Vickery, Boston, Mass.	25.00
Dr. Henry H. Atkinson, Fordyce, Ark.	5.00
Dr. Archibald MacLaren, St. Paul, Minn.	25.00
Dr. Helen G. Putnam, Providence, R. I.	5.00
Maricopa Co. Med. Soc., Phoenix, Ariz.	25.00
Dr. John D. S. Davis, Birmingham, Ala.	5.00
Dr. James M. Popp, New Castle, Pa.	5.00
Dr. Horace Binney, Boston, Mass.	5.00
Dr. Warren Wilson, Northfield, Minn.	5.00
Dr. Gibbs Biscoe, Pendleton, Ark.	5.00
Dr. Eleanore F. Boulton, Philadelphia, Pa.	5.00
Dr. Orr L. Perry, Elkins, W. Va.	2.00
Dr. John P. Getter, Belleville, Pa.	2.00
Dr. W. H. Witt, Nashville, Tenn.	5.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah.	50.00
New York Medical Union, New York, N. Y.	100.00
The Montgomery Co. Med. Soc., Dayton, Ohio.	304.50
Receipts for week ending February 27.	$ 807.50
Previously reported receipts.	3,579.00
Total receipts	$4,386.50
Previously reported disbursements.	$3,575.00
Disbursements for week ending February 27, 352 boxes of food at $2.30	809.60
Total disbursements	$4,384.60
Balance	$ 1.90

F. F. Simpson, M. D., Treasurer.
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

The report of the treasurer for the week ending March 6, 1915, lists the following contributions:

Dr. Grace Wolcott, Boston, Mass.	$ 10.00
Dr. Harold E. Perry, New Bedford, Mass.	10.00
Pittsburgh College of Physicians, Pittsburgh, Pa.	45.00
Dr. Daniel R. Robert, Brooklyn, N. Y.	5.00
Mrs. Charles E. Paddock, Chicago, Ill.	5.00
Dr. Chas. S. Wright, Act. Asst. Surg., U. S. A., Portland, Me.	5.00
Dr. E. C. S. Taliaferro, Norfolk, Va.	30.00

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Dr. William H. Wilder, Chicago, Ill		25.00
The Thunder Bay Medical Soc., Ontario, Canada		25.00
Garland Co. Hot Springs Medical Society, Hot Springs, Ark		25.00
Dr. J. Shelton Horsley, Richmond, Va		5.00
Dr. E. F. Dodds, Missoula, Mont		5.00
Dr. George R. Little, Wichita, Kan		25.00
Dr. James A. Jackson, Madison, Wis		5.00
Receipts for week ending March 6		$ 225.00
Previously reported receipts		4,386.50
Total receipts		$4,611.50
Previously reported disbursements—		
1,625 standard boxes of food at $2.20	$3,575.00	
352 standard boxes of food at $2.30	809.60	
	$4,384.60	
Disbursements week ending March 6 (100 boxes of food at $2.30 per box)	230.00	
Total disbursements		$4,614.60
Deficit		$ 3.10

F. F. Simpson, Treasurer,
5 Jenkin Arcade Bldg., Pittsburgh, Pa.

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Obituaries

Major Theodore Gaillard Croft, S. C. N. G., died in the Columbia (S. C.) Hospital, March 10, 1915, aged 69.

Major Croft was born at Greenville, S. C., July 10, 1845, the son of Dr. Theodore Gaillard and Eliza Ebb B'Oley. During the Civil War he served in the 16th Regiment of South Carolina Volunteers, C. S. A., and at the close of the war pursued his academic studies at Furman University, the Citadel at Charleston, S. C., and the University of Virginia. His medical course was taken at the medical college of the State of South Carolina at Charleston, from which he was graduated in 1875. He settled in Aiken, S. C., for practice. Major Croft was a fellow of the American Medical Association. In 1901 and 1902 he served as president of the South Carolina Medical Association. He was also a member of the Assciation of Surgeons of the Southern Railway, the Aiken County Medical Association and of the Tri-State Medical Association of the Carolinas and Virginia. He served for several years as surgeon for the Southern Railway at Aiken, and from 1902 to the time of his death was a member of the South Carolina Medical Examiners.

Passed Assistant Surgeon John Patrick McGowan, N. M. N. Y., formerly an active member of the Association, died at his home in New York City, February 28, 1915. Surgeon McGowan was born in Irvinton, N. J., April 23, 1865, the son of Patrick and Sarah Gilmartin McGowan. He received his preliminary education in the parochial schools of New York and in the New Germantown, N. J., Academy.

His medical course was taken at Bellevue Hospital Medical College, from which he was graduated in 1888. He became assistant to the chair of genito-urinary surgery and dermatology and attending genito-urinary surgeon in the out-patient department of his alma mater, serving in these positions until 1892. He was made assistant dermatologist to the de Milt Dispensary in 1895; was made instructor in operative surgery in the New York Post-Graduate School in 1890, and also surgeon to the Roosevelt Hospital and attending dermatologist to the New York Foundling Hospital. He was also consulting surgeon to the Presentation Day Nursery and surgeon to the genito-urinary and dermatological departments of St. Bartholomew's Hospital.

Among Surgeon McGowan's contributions to medical and surgical literature were papers on "Reflex Neurotic Eczema," "History of Syphilis," "Diagnosis of Diseases of the Bladder and Eczema, Its Nature and Treatment."

His society memberships included the Medical Society of the State of New York; the Manhattan Clinical Society, of which he was once president; the Society of Dermatology and Chemical Urinary Surgery, of

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which he was also president; the Society of Medical Jurisprudence, Medico-Legal Society and the American Urological Society.

Surgeon McGowan's military history began in March, 1898, when he was commissioned surgeon in the Naval Militia of New York. He saw active service during the Spanish-American War as Passed Assistant Surgeon, U. S. Navy, from April 26 to September 7, 1898, on the gunboat *Yankee*. After the war he resumed his duties with the naval militia and was made surgeon and later brigade surgeon, resigning in 1904.

Surgeon Fernand Louis J. M. deVerteuil, R. N. R., who was ordered to duty on H. M. S. *Good Hope* in August last, went down with the ship when she was sunk in a sea fight off the coast of Chili in November last. Surgeon deVerteuil belonged to a family well known in the West Indies. He studied medicine at Edinburgh and at Kings College and in St. Thomas Hospital, London. He took the M. R. C. S., L. R. C. P., London, in 1904, and his M. D. degree at Edinburgh five years later. He first held a position in the Trinidad Medical Service and later settled at Vancouver, B. C. He was a member of the Canadian Medical Association, the author of several papers dealing with tropical diseases, and was the translator of "Experimental Prophylaxis of Syphilis," by Maisonneuve.

Major Frank Dean Bain, Surgeon of the Second Ohio Infantry, U. S. V., during the Spanish-American War, died at his home in Kenton, Ohio, February 23, 1915, from angina pectoris, aged 64.

Major Bain was born in Kenton, Ohio, August 24, 1850, the son of Mr. and Mrs. James Bain. His medical education was received in Bellevue Hospital Medical College, New York City, from which he was graduated in 1872. He entered practice in his home town of Kenton and there remained except during the time of his service as a medical officer. He was a Fellow of the American Medical Association, president of the Ohio State Medical Association in 1905 and 1906, and at one time president of the Erie Railway Surgeons' Association. At the outbreak of the Spanish-American War he went to the front with the Second Ohio Infantry, U. S. V., as Major Surgeon, and served with the regiment and as Brigade Surgeon in Cuba.

Major Thomas Carney, M. C., N. Y. N. G., one of the leading physicians of Schenectady, N. Y., who was graduated from the Albany, N. Y., Medical College in 1902, died in Johns Hopkins Hospital, Baltimore, February 6, after an operation on the stomach.

Brigadier General Daniel C. Noble, Surgeon General of Vermont from 1908 to 1910, died in Dr. Hayes' Sanatorium, Burlington, Vt., January 18, after an illness of two years, aged 53.

He was born in Benson, Vt., in 1862, and received his preliminary collegiate education at Oberlin, O. He took his medical course at the New York Homeopathic Medical College and Flower Hospital, New York City, from which he was graduated in 1892.

For more than ten years he was health officer of Middlebury, Vt., and for several years a member of the board of trustees of the Vermont State

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Sanatorium for Tuberculosis at Pittsford. He was a member and once president of the Vermont Homeopathic Medical Society. His sole military service began October 8, 1908, when he was appointed Surgeon General by Governor George H. Prouty, and he continued in this position until the inauguration of Governor Mead in October, 1910.

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The Military Surgeon

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Original Articles

Authors alone are responsible for the opinions expressed in their contributions

How Can the Hospital Ship Best Serve the Needs of the Fleet*

BY T. W. RAISON, PASSED ASSISTANT SURGEON, U. S. NAVY.

A WARSHIP is one of the most highly specialized products of modern times. This is not the case, however, with the hospital ships, as at present provided. At the present time no nation in the world possesses a ship especially designed and constructed as a hospital ship. Indeed, until the outbreak of hostilities, the United States was the only nation to keep a hospital ship in full commission. It seems to be the consensus of opinion among naval strategists that any ship can be reconstructed in a short time to answer the purpose of a hospital ship. This policy is as much a fallacy as that which would suppose that almost any edifice on shore can be reconstructed into a hospital in case of necessity. It is true that much can be accomplished by such haphazard transformations, but until the time comes when ships are desiged and constructed for the specific purpose of best performing the function of a hospital ship, the fleet will never secure the maximum efficiency which could be obtained from the services of such a ship.

I know of no better definition of the ideal hospital ship than that given by Medical Inspector M. F. Gates, U. S. Navy, at the Twenty-second Meeting of the Association of Military Surgeons: "For the services of the fleet, a hospital ship should afford, as fully as possible, all the facilities, apparatus, equipment and specially trained personnel which should be available in a thoroughly modern hospital on shore and should also carry a large

* Read at the Twenty-third Annual Meeting of the Association.

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reserve of stores for issue to other vessels of the fleet, and an extensive field hospital equipment."

To this ideal, in my opinion, should be added: The ship must be so designed and constructed as to care adequately for a large number of sick and wounded, to have some method of quick transfer of the sick and wounded, to be a good sea boat of sufficient speed to maintain its position with the fleet under all conditions, and capable of quickly transferring the sick and wounded from vessels at sea to a base hospital ashore. It should have an extensive cruising radius and be supplied with a large number of power boats.

In time of peace, the *Solace* has well justified her expenditure, and has come to be looked upon as almost a necessity. Yet the most enthusiastic admirer of the *Solace* must admit that in time of war her facilities would be totally inadequate to care for the wounded in case of a naval battle of even one division of the fleet. The great benefit to the fleet which has resulted from the use of the *Solace* indicates clearly how much greater efficiency could be secured by a ship specially designed and constructed for use as a hospital ship.

To those who have served aboard the *Solace,* her limitations are but too apparent. Originally the *Solace* was the *Creole* of the Morgan Line, and designed for a cargo boat. Her coaling facilities and speed are poor, and in any kind of heavy weather the *Solace* has a stagger that is anything but desirable in the treatment of sick and surgical cases. The officers' quarters on the *Solace* are cramped and her ventilation is nil, so that in the medical and convalescent wards the air becomes quite foul. As I recall the station bill, the *Solace* has facilities for caring for, under the most crowded conditions, two hundred and forty-two patients.

In a naval action of any magnitude, it is generally estimated that the casualties will amount to from 15 to 25 per cent, of which from 3 to 6 per cent will be those killed outright. The percentage of casualties will depend to a great extent upon whether or not the force is defeated. The battle of Tsushima, or Sea of Japan, is the latest and best example of what may be expected under modern conditions of warfare. In this action the opposing forces were nearly equal.

Regarding Tsushima itself, Daveluy says: "Of the 14,200 men who manned the Russian squadron, 6,142 became prisoners; 5,000 had disappeared." Braisted states that "The number of missing is variously estimated at from 5,000 to 8,000, while the

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lowest figures available give the actual loss of life as about 4,000." *

It seems conservative, therefore, to assume that some 30 per cent of the entire force perished in this engagement.

It is impossible to know or ever to know what percentage of those reported killed were drowned, but in any naval action the loss of life by drowning must be considered in the total of casualties expected. Many of these lives might perhaps have been saved had efficient means been present to rescue the drowning, but in fleet action of any magnitude, the casualties from drowning will probably equal those due to gunfire, as is well shown by the article quoted.

On the Japanese side the loss from wounds was very small, considering the number engaged: "Our casualties throughout the whole fleet were 116 killed and 538 wounded, officers included, as shown in the detailed list appended." †

From the foregoing reports it is easily seen how totally inadequate the facilities of the *Solace* for the care of the wounded would prove in time of war. Allowing 15 per cent, which is a very conservative estimate, as the total amount of casualties, and subtracting 3 per cent for the number killed outright, in a general action, including the entire Atlantic fleet, it would be necessary to care for and treat in the neighborhood of three thousand cases. Of course a number of these cases would not require more than simple dressings and would not be transferred to the hospital ship, but even under the most favorable circumstances, it would be impossible to give all the seriously wounded accommodation on the *Solace*.

In time of peace the facilities of the *Solace* are sufficient to give the fleet an efficient hospital service, but in the event of war, additional makeshift hospital ships will have to be improvised. These improvised ships will not only be more costly, but will be much less efficient than ships designed and constructed for use as hospital ships.

The only reason for the existence of a navy is its being an efficient weapon of defense and offense in time of war. To best serve the needs of the fleet, a hospital ship should be designd primarily to give the most efficient service in time of war. Such a ship should be large enough to care for a large number of wounded. It should have a speed sufficient to prevent its em-

(*) Loss of Life by Drowning in Naval Warfare, by Surgeon T. W. Richards, U. S. Navy, United States Naval Medical Bulletin, Vol. 6, No. 2, April, 1912.
(†) The Naval Battles of the Russo-Japanese War, by Captain Togo, Tokyo, 1907.

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barrassing the maneuvers of the fleet, and to enable it to keep out of the enemy's way, and to come up quickly for the transfer of the dead and wounded.

Oil should be used as fuel on account of the increased steaming radius it secures, on account of the absence of smoke and cinders, and on account of the celerity and small discomfort with which the supply can be renewed. The *Solace* requires anywhere from three days to a week to coal completely. During that time coal dust is everywhere, the winches are grinding and rumbling, and everyone aboard is miserable. Such a condition does not help in the treatment of those seriously ill. With oil, the supply could be quietly renewed in a few hours and with entire absence of dirt.

One of the prime requisites of a hospital ship is ability to transfer speedily patients from another ship or to a base hospital. To secure this end, nests of power boats should be provided, with cranes to launch them quickly.

Upon the declaration of hostilities a battleship either destroys or lands in a navy yard all its woodwork and all but two of its boats. In time of war a battleship will have no facilities for transferring wounded and such facilities will have to be provided by the hospital ship. Boats of the hospital ship would be of great use in rescuing men from the water should one of the fighting ships be sunk. In addition to boats for transferring the wounded, a hospital ship should also be provided with some means for transfer of the wounded from a battleship direct to the hospital ship. Such an apparatus has been devised by Surgeon General C. F. Stokes, and is briefly described in the *American Practice of Surgery,* as follows:

"The writer devised an apparatus which consists roughly of a steel hawser made fast to the fighting ship, a weight let over the side of the hospital ship sufficiently in excess of the weight of the hawser, the patient and the transferring car, to keep the line taut and clear of the water while effecting the transfer. This type of apparatus can be used in any sea-way in which the guns can be fought, and the ships, while the transfer is being accomplished, lie dead in the water."

The machinery of a hospital ship should be placed aft as is done with the machinery of a modern collier. Trim can be secured by trimming tanks, ballast, or arrangement of stores. With the machinery placed aft, the vibration is less and a better arrangement of wards can be secured.

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Ample storerooms for medical and surgical stores should be provided. One of the functions of a hospital ship should be the renewal of the medical and surgical supplies of the fleet when the fleet is out of touch with the medical supply depots at the base.

Facilities for ship disinfection should be carried, together with an ample supply of disinfectants. It should be possible to disinfect a battleship completely, should this be necessary on account of an outbreak of epidemic disease in the fleet.

Time will not permit, nor is it in the scope of this paper, to give a detailed description of an ideal hospital ship. In a general way such a ship should have an examination room, where patients are first received, examined and sent to the proper department. Ample operating rooms, with sterilizing, anæsthesia and washrooms should be provided. In connection with the operating-room, an instrument repair room with an outfit should be furnished. The operating-room should be of easy access from the surgical wards. Ample surgical, medical and venereal wards should be provided. Each of these wards should be furnished with separate diet kitchens, toilets, dressing-rooms and quiet-rooms. The medical ward should have a portion doubly screened for the care of patients suffering from mosquito-borne diseases.

Ample contagious wards should be provided. These should be on the pavilion plan and each compartment should have a separate toilet. A diet kitchen with means of absolutely sterilizing the used dishes should be provided.

An officers' ward should be furnished. This ward should be composed of separate rooms and should have a recreation and dining-room combined, diet kitchen, toilet, and dressing-room.

The decks should be roomy and sheltered, and so arranged that ample space thereon could be assigned to convalescents.

A separate convalescent mess-room should be provided, and when not in use this compartment could be used as a recreation-room for patients.

An autopsy-room with a complete embalming outfit should be carried. The autopsy-room should be in close proximity to the morgue, which being connected up with the cold storage apparatus, would enable the ship to care for a large number of dead. A large number of metallic caskets should be carried.

In addition to the above, there should be provided a bacteriological and serological laboratory. This should have facilities for carrying and caring for laboratory animals.

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A room devoted to eye, ear, nose and throat work, with a complete outfit of the most modern instruments and fixtures, should be furnished.

A specially designed room for X-ray work with a dark-room attached should be furnished and a complete X-ray outfit, electro-therapeutic outfit and photographic outfit should be carried.

A small psychopathic ward with padded cells and restraint apparatus should be found in the ship, and in connection therewith a hydro-therapeutic outfit. A complete dental equipment and room for same should be provided and at least two dental surgeons assigned to the ship. This department has well shown its worth on the *Solace*.

A medical library, well selected and kept up to date should be carried. This library should contain enough volumes so that it could be used as a circulating and reference library by the medical officers of the fleet.

A complete field hospital outfit should be provided. This could be used both in establishing a field hospital in case of landing parties or in making a contagious camp on shore when necessary.

There should be large steam disinfecting autoclaves on board in addition to the general ship disinfecting outfit. These would prove of great value in disinfecting a large quantity of mattresses or clothes, or large packets of dressings.

A large hospital corps would be necessary, not only for the use of the hospital ship, but for the filling of vacancies caused by casualties in the hospital corps on the fighting ships.

The hospital ship would further act as a training school for hospital apprentices, and hospital apprentices from the battleships should be sent there from time to time for courses of study. On a modern battleship the facilities for teaching the hospital corps are poor. Furthermore, each ship has a different routine, and the requirements for advancement of rating vary greatly.

To care for the hospital corps attached to the hospital ship, wards should be furnished; also a small ward in which those men who have been on night duty could sleep undisturbed in the daytime. A school-room for the hospital corps should be set apart and regular courses of instruction be given. This school-room should be available as a meeting place of the medical officers of the fleet, and frequent medical conferences should be held.

The galleys should be large and commodious, not only because they have to supply the needs of the hospital ship, but because the galleys on the fighting ships are likely to be destroyed in action as they are all located in exposed positions. In case of

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necessity the hospital ship should be able to supply hot coffee and easily prepared food to fighting ships.

A pay officer should be assigned to duty on the hospital ship. At the present time a patient may be transferred to the hospital ship and his accounts may be carried on some ship thousands of miles away. Furthermore, the purchase of supplies and payment of the hospital corps and officers would be vastly facilitated by having a pay officer assigned to the hospital ship.

Commissary stewards should be assigned to the hospital ship, men who have been under special courses of instruction in the preparation of food for large numbers of men. In no ship of the fleet is the proper preparation of food so important as on the hospital ship, but at the present time it is left entirely under the supervision of a hospital steward.

Yeoman should be assigned for duty on board, as they would be an absolute necessity in time of war in order that the reports might be prepared promptly. At the present time this labor is performed by the hospital corps.

Sufficient medical officers should be carried in time of peace to carry on the work of the hospital ship. In time of war this number would have to be greatly augmented, not only to supply deficiencies caused by casualties to the medical corps of the fleet, but also to aid expeditiously in the care and transfer of the wounded. After a severe engagement the medical staff of a battleship would be inadequate if the casualties amount to the anticipated percentage; allowing two hundred casualties as the number to be expected on a modern battleship after a severe engagement, three medical officers giving fifteen minutes' attention to each case would require over sixteen hours' work, without any intermission, to care for the wounded.

If the hospital ships were provided with an excess of medical officers, each group of which was assigned to study the requirements of a division of the fleet, the care and transfer of the wounded would be greatly facilitated.

All the facilities of the hospital ship should be extended to all the ships of the fleet. Medical officers assigned to duty on the hospital ship should be in two classes: one class should be permanent, the other class should be temporary.

An exchange of duty with the medical officers of the fleet should be frequent from the officers temporarily attached to the hospital ship, so that all medical officers might receive the advantages of duty on the hospital ship. Furthermore, after a case is transferred to the hospital ship, the medical officer of the

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ship from which the case is transferred should be advised of any change of diagnosis and the ultimate disposition of the case. When a surgical case is transferred to the hospital ship, the medical officer of the ship from which the case is transferred, should, when practicable, be one of the assistants at the operation.

In conclusion it may be stated that a hospital ship will best serve the needs of the fleet, when that ship has not only all the facilities of a modern hospital ashore but, in addition, has been so designed and constructed as to enable her to meet the special requirements which exist under modern conditions of warfare.

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Notes on Leprosy*

Based on Experience at the Molokai Settlement

By George W. McCoy, Surgeon, U. S. Public Health Service; Director, U. S. Leprosy Investigation Station, Hawaii.

THE following notes are based upon observations at the Hawaiian Leper Settlement at Molokai. Although they bring out no essentially new points, they may be of interest.

Causes of Deaths Among Lepers.—From reading about this subject one gathers the impression that leprosy is not directly a common cause of death. The reports from the Molokai Settlement, which, of course, include nearly all deaths from leprosy that occur in the Hawaiian Islands, show that leprosy causes about 75 per cent of all deaths. The following tabulation was taken from the official reports of the Territorial Board of Health, and shows the chief causes of death for a period of about five years:

Leprous marasmus, anæmia or exhaustion	196	
Leprous fever	25	
Leprous laryngeal stenosis	13	
Leprosy (without further specification)	9	
Total deaths directly due to leprosy		243
Anasarca	14	
Pneumonia	13	
Senility	12	
Pulmonary tuberculosis	9	
Nephritis	7	
Accidental, including suicides	6	
Puerperal infection	5	
Gastro-enteritis	5	
All others	25	
Total deaths (lepers) not directly due to leprosy		96
Grand total		339

It will be observed that pulmonary tuberculosis is relatively uncommon (about 3 per cent), forming a much smaller proportion of the deaths than it does outside the settlement, the tuberculosis mortality for the territory at large being approximately 12 per cent of all deaths.

Prevalence of Glandular Tubercular Infection.—As has just been shown, pulmonary tuberculosis is not particularly prevalent in the settlement; however, glandular tuberculosis is remarkably

* Read by Title at the Twenty-third Annual Meeting of the Association.

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common. It was only when we began to submit all cases of glandular disease to the animal inoculation test that it became plain that practically all of the cases of necrosis of lymph glands were due to infection with *B. tuberculosis*. Thus in a little over one year nearly 2 per cent (12 among 700) of the inmates of the settlement developed this condition. We all know that glandular tuberculosis is a very common disease of childhood, but is relatively infrequent among adults. These cases, however, all occurred in grown persons. Another curious fact is that in most of the cases the primary development of glandular trouble is not in the neck, as is usually the case, but in the axilla or in the groin. Thus the distribution of glands primarily affected in the 12 cases was as follows:

Axillary	7	Neck	1
Inguinal	3	Elbow (supra-trochlear)	1

The tubercle bacillus was cultivated from all these cases, or from the inoculated guinea pigs, and was found in each instance to be of the human type.

Unusual Case of Leprous Fever.—The patient was a Hawaiian boy, aged 13, in whom signs of leprosy appeared two years before. The disease was of the "mixed" type; that is, there were both nodular and nerve lesions, but the case was not an advanced one; indeed the signs of the disease were by no means conspicuous.

The patient sickened about noon. There was loss of appetite, pallor and fever, the latter reaching 103 degrees F. within a few hours. When seen two days later prostration was marked and the fever ranged from 101 degrees F. to 105 degrees F., moving up and down between these points in the course of a few hours. The striking feature about the case was a measles-like eruption which was most profuse on the face and forearms but was scattered pretty generally over the body; the only parts which were relatively free were the abdomen, the scalp, the soles and the palms. Even in these locations a few of the spots were to be found. The color was at first bright red, but it gradually changed to dusky red. The rash was made up of soft, slightly elevated papules which varied in size from a pin head to perhaps 8 mm. in diameter. One of the papules which was remote from any previously existing leprous lesion was excised and smears from it showed a large number of acid-fast bacilli which were chiefly in the groups so commonly seen in leprous lesions. The blood also showed acid-fast bacilli in large numbers. The rash faded somewhat the day before

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death occurred. The patient died on the tenth day. An autopsy could not be secured.

Cholesterin-Bearing Lesions.—The only cholesterin-bearing lesions it has ever been my fortune to see occurred in lepers and came under observation within a few weeks of one another. While this condition bears no special relation to leprosy, it is mentioned here as being a matter of general interest and is by no means common, judging by the experience of those with whom I have discussed the subject. The first case was a Chinese leper (mixed type) who had a rather large hydrocele on the right side. The fluid was noted as being turbid when it was withdrawn and closer examination showed it to be shimmering. Microscopical examination showed a large number of cholesterin crystals. The second patient had nerve leprosy with slight manifestations which had been quiescent for many years. In this case there was an elastic tumor mass on the left side of the neck at about the level of the thyroid cartilage. The mass was about 3 cm. in diameter and had been forming for about six months. There was a well defined capsule filled with glairy pus. The microscopical examination showed many cholesterin crystals, mostly in large masses. Smears were negative for bacteria and no growth occurred on culture media. A guinea pig inoculated with some of the pus remained well.

Unusual Skin Lesions.—Two cases of a rather rare skin manifestation of leprosy were observed. In each there were smooth, elevated, slightly reddish papules varying considerably in size, but averaging about 2 or 3 mm. in diameter. In one case they covered the body pretty completely excepting the exposed portions. The general appearance of the individual lesions was strongly suggestive of the papules of smallpox. In the second patient a similar eruption was confined to the back. In each case acid-fast organisms were found in the lesions in large numbers.

Therapeutic Efforts.—In considering the results of therapeutic measures in leprosy three things must be borne in mind: First, that the progress of the disease is usually very slow. It is probably not beyond the mark to say that a large proportion of cases, perhaps half, will show no material or observable progress in a period of one year. The point about this is that designating the result of treatment as "stationary" really means little or nothing. Second, lepers are very likely to have long periods of spontaneous and sometimes very marked improvement. It is not at all unusual to have cases noticeably clear up without treatment or with no change in surroundings beyond

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good food and improved hygienic conditions. Some of these soon reach a stage where a cursory examination fails to show any evidence of the disease. Third, a single negative microscopical examination of nasal mucus or of snips from skin lesions is of little consequence. It has happened many times that two or three examinations were necessary to demonstrate bacilli in suspicious looking lesions.

Bearing these points in mind our observations of the treatment of leprosy with several agents will be briefly reviewed.

Vaccines.—The experience at the Leprosy Investigation Station with vaccines cover about thirty cases, in several of which the treatment was kept up for a period of about two years. Live cultures as well as dead ones were used. In several cases pronounced constitutional symptoms with marked febrile manifestations have occurred, and in one case there appeared simultaneously a generalized acne-like eruption. In each case the acute symptoms subsided without having done any harm. As to results, there was some difference of opinion among the observers as to whether any of the cases were materially or permanently benefited; an impartial observer would probably have held that the disease had not been influenced in any decided manner.

Chaulmoogra Oil.—This drug, either in the ordinary commercial form or in its refined state, has long been used in the treatment of leprosy, and there are some grounds for believing that it is capable at least temporarily of arresting the progress of the disease in many cases, and our own experience confirms this view. Within recent years Jeanselme, in France, and Heiser, in the Philippines, have reported excellent results from the hypodermic use of the drug. We have had one case under this treatment for about 15 months, and several others for periods of about one year. The patients all asserted that they felt better while taking the treatment but there were no objective signs of improvement. Abscesses at the site of injection appeared in two cases but healed promptly after being evacuated.

Carbon Dioxide Snow.—This agent, which is extensively used in dermatological practice, was first employed in leprosy by Dr. James T. Wayson of Honolulu. The affected areas of skin are frozen at intervals of a week or ten days, a blister forms and usually ruptures, sometimes leaving a superficial ulceration which readily heals. Some cases do very well under this treatment, and for some of the skin lesions it appears to be more satisfactory than any other therapeutic measure. Whether any

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patients are cured is a question that cannot be definitely answered at present.

Type of Cases in Regard to Segregation.—In some foreign countries the laws requiring segregation of lepers differentiate between those cases that are a menace to the community and those that may be regarded as relatively harmless. So far as I know the laws in the various political divisions of the United States make no distinction. In Hawaii, while the law requires that a case shall be pronounced a leper or a non-leper—a matter of great difficulty in some cases—discretion is vested in the Board of Health to parole any which in the Board's opinion properly may be permitted at liberty. This allows the paroling of a considerable number of anesthetic cases. The writer believes that proper cases for parole are those of the nerve type of the disease in which bacilli cannot be demonstrated in skin lesions or in the nasal secretions, and in which ulcerations do not exist. Such cases should be paroled under the following conditions:

(1) Report to a physician for examination at least once in six months.

(2) Not to engage in preparation of food, or serving same, for other persons.

(3) To have separate bedding and table utensils.

(4) Not to live in the same house with children under 16 years of age.

It is believed that under such conditions there is practically no risk to the community in permitting this class of lepers to remain at large even in an endemic focus of the disease.

In concluding, the writer wishes to express his indebtedness to Dr. W. J. Goodhue, Medical Superintendent of the Molokai Settlement, and Dr. J. T. Wayson, Medical Superintendent of the Receiving Station for Lepers at Honolulu, for the opportunity of seeing some of the cases mentioned in this paper.

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Is the Volunteer Medical Officer of To-Day A Soldier*

By Gustavus M. Blech, Major M. C., Ill. N. G.

An inquiry into the purely military side of the volunteer medical officer of today necessitates that we agree on the exact meaning of the word "volunteer."

To my mind the word applies to all physicians likely to serve as medical officers in time of war, but who are not actively connected with the regular Army or Navy. While this includes all members of the medical reserve corps of the Army and Navy, inactive list, the following remarks are principally intended for the medical officers of the National Guard.

In spite of the close relation between the regular military establishments and the National Guard and Naval Reserve, in spite of the rapid strides made by the citizen soldiery in the last two decades, the fashion of referring to the regular as "professional" and to the national guardsman as "amateur" is still prevalent.

There is undoubtedly some justification for this classification, but the greater seriousness of purpose now marking militia units in progressive states, the keener realization of the responsibilities of the military service by officers and men in the organized militia and the serious endeavors by all earnest patriots in the guard to come as close as external circumstances permit to the standard set by the regulars, certainly leave no room for such words as "amateur," or the less refined "tin-soldier," and the word "volunteer," which is fully justified, assumes a meaning at once ideal and noble.

Time was when the National Guard was little more than a charming social organization. Drill once a week, a few parades, a week in camp, where a little shooting and more parading was the sum total of military activity, a number of "social events," and, last but not least, the stormy political activities among officers when the commission of a colonel, lieutenant colonel or major was about to expire, constituted the program of the average regiment or battalion.

Tempora mutantur. What the National Guard means today is best illustrated by two occurrences which have come to my personal notice. In a certain infantry company the men are

* Read at the Twenty-third Annual Meeting of the Association.

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anxious to elect their first lieutenant to the vacant captaincy. The lieutenant, whom I know well, is a splendid soldier and as fine a man as one could wish to meet. To my great surprise I learn a few days after the election that the second lieutenant has been chosen and ordered up for examination. On inquiry I learn that at the eleventh hour the first lieutenant declined the nomination in favor of his subordinate on the ground that no infantry company can do well unless the captain gives up practically every evening in the interest of his organization. That he could not do. The second lieutenant had the time and the ability, and he was willing to serve under him.

In another regiment one of my patients after serving four years as private and non-commissioned officer was rewarded by a commission which he coveted. After four months' service as a lieutenant he resigned. I asked a few of the members of the company why my friend resigned, but aside from expressing regret at losing so fine a man as one of their officers, they could impart no information. Suspecting something sinister in higher circles I asked my friend point-blank for the real cause of his resignation. He stated frankly that he could not conscientiously hold his commission because he was compelled to add to his income by adjusting the books of several small firms after his regular working hours for a firm of expert accountants. He was willing to give up a night for drill, as he had done as a private and sergeant, but when he discovered that he had to study army and field service regulations, military topography, ballistics, sanitation and was also expected to work out tactical problems, he simply had to give up.

These two incidents speak volumes for the line of the guard. Let us now glance at a technically specialistic branch—the sanitary service.

The time is not long since higher officers looked upon army surgeons as mere medical men in uniform—a sort of fifth wheel to the wagon, and decried giving them any military grade as a practice absolutely senseless if not dangerous for the medical service. A good doctor is a good doctor irrespective of rank, they argued, and a bad one will be worse in direct ratio to the rank on the shoulder straps. To them the surgeon was there for the sole purpose of treating the sick and wounded; he was to function as civilian physicians and surgeons function in civil communities.

This fallacious conception of the function of the medical service in the Army was given a severe jolt by Jonathan Letterman.

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His genius laid the foundation for modern medico-military organization, in fact for the transformation of a mere conglomeration of medical men in uniform into a highly organized technical branch of the two great fighting machines on land and water.

There were great army surgeons before Jonathan Letterman; there were great if not greater sanitary officers after him, but he was a pioneer who had blazed the way for the great achievements made by the sanitary services in the wars of 1866 and 1870.

That his fame had reached Germany at a time when America failed duly to acknowledge the greatness of one of its sons, is not only evidenced by the writings of distinguished surgeons who served in the two wars just mentioned, but by a little incident which I learned from good authority.

Letterman's daughter was visiting Kiel and was on one occasion introduced to von Esmarch, the originator of artificial anemia of the extremities for insuring bloodless amputation. Von Esmarch inquired whether she knew of a namesake in America who had served in the civil war as a surgeon. On learning that she was that surgeon's daughter, von Esmarch clasped the girl in his arms and paid in the presence of the guests an eloquent tribute to her father as a great benefactor to humanity.

The close of the Civil War saw the Union in the possession of an army second to none in the world. But the sword was transformed into a ploughshare and everybody tried hard to forget the bitter lessons of the war until the war with Spain caused the War Department to realize the true meaning of von Moltke's great words: *Si vis pacem para bellum.*

Then began our military renaissance. Though we have still a great task before us, and though Congress and the people still seem deaf to the *mene, mene tekel upharsin,* yet we are slowly and surely advancing.

The American army medical service, though numerically too small to be able to cope unaided with an emergency of magnitude, yet represents today the model, after which the volunteer medical services must be patterned.

The abolition of such designations as assistant surgeon, surgeon, deputy surgeon general and the like, and the substitution therefor of military grades indicate the change in the attitude of the War Department toward the sanitary service, and show that this service is now considered an integral part of the military organization. No commander today would dare enter a campaign with a military organization that did not include a sanitary

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service, for he well knows that he must not only prevent epidemics from decimating his forces but must provide for adequate therapy and evacuation of his ineffectives, if for no other purpose than to maintain maximum fighting efficiency by sustaining the morale of his troops, and by preventing their diversion from their legitimate duties.

Prevention of disease *en masse,* the care of the wounded and disabled and their evacuation to the rear always with the aim in mind of achieving results to maintain fighting efficiency—these are not only professional duties but work of a distinctly military character, part and parcel of modern strategy and tactics, work that cannot be successfully accomplished by "mere doctors in uniform."

With this standard in mind, the medical service in the organized militia, like that of the line, must adapt itself to present-day demands.

Time was when colonels commanding militia regiments appointed their medical officers from among their friends merely because every colonel was entitled to a staff, and all these men had to do was to keep themselves in the saddle and ride behind the colonel. Under such circumstances it mattered little what their professional standing was or whether they had any interest in medico-military matters. Occasionally there was a minor ailment in the camp, and if fortune had it that the hospital steward was a physician in private life, the regimental medical officers had practically no work of any kind. They were only figures needed for the stage setting of a regimental commander.

But all this is a matter of the past. Today each larger state has on paper at least a medical corps with a chief at the head. Regimental medical officers are nominally attached to the regiments and independent sanitary commands, field hospitals and ambulance companies, have been and are being organized in many states of the Union.

To be sure, all is not in the medical corps of the guard as it should be, and politics and favoritism are still playing important rôles, so that the sanitary service, being considered by many adjutants general as mere by-plays, is still treated in stepmotherly fashion in equipment and apportionment of material support, while, in some states, men hold commissions in the medical corps who have not been engaged in medical practice for many years, but in spite of all this we note with satisfaction that the guard is imbued by the proper spirit.

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The annual meetings of the Association of Military Surgeons and the frequent appearance of original articles by medical officers of the National Guard show that we are properly faced and aligned and that the column is marching forward.

A few criticisms and suggestions, especially for younger medical officers, may not be amiss.

It must be generally conceded that as recruiting officers the medical officers of the guard are second to none. But I believe that when it comes to determine malingering from actual disease many of my colleagues will fail, because the detection of pretense represents virtually a science by itself which must be studied. This subject is of such importance that I suggested to the distinguished predecessor of the present editor of our monthly that a special department be devoted to it. Unfortunately, economic conditions did not permit carrying out this proposition. The literature in the foreign press in countries where military service is compulsory, is voluminous on this one subject. In the guard no man has to resort to such subterfuges to avoid service, but in an actual campaign when the state insignia of the collars will be replaced by the letters U. S. V., I fear many suffering from nostalgia or cowardice will attempt to trick their officers. Civilian physicians are accustomed to depend for their clinical histories on the statements made by the patients, and they are not likely to change this attitude in the field. Thus they may fail to prevent unlawful escape from duty.

As teachers of the enlisted sanitary personnel we meet all classes—good, bad and indifferent. I have visited many classes in first-aid and have been astonished at the amount of information possessed by the lecturers. One, for example, spent nearly an hour discussing the function of the pancreas, another explained the complicated mechanism of the brain, another was not content until he had named every muscle of the arm in pure Latin, but when I glanced at the audience I noticed many leaning back in their chairs with eyes half open, apparently enjoying their comfortable positions far more than the subject matter of the lecture.

The ability to interest and instruct a class of young men on subjects so greatly at variance with their daily interests as are first-aid, nursing and sanitation, is a rare gift. Those who do not possess this gift must watch successful teachers, look up certain catechisms and train themselves to present mental pictures of disease and injuries by simple but graphic descriptions, assisted by colored drawings.

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I have found few detachments which are given instruction in infantry and litter drill by medical officers. Usually this important part of the men's training is left to a sergeant. The idea prevails that medical officers have more important work to do than to act as drillmasters. The fact is that few medical officers know anything of formations, evolutions or even the manual of the litter. In discussing this problem I have encountered the attitude that in time of war each little squad will get their patients on the litters as best they can and carry their charges to the place of destination as best they can, and that no one will think of military precision under such conditions. The whole drill, in the opinion of such officers, is intended solely for military display.

Of course, medical officers having such ideas cannot be expected to familiarize themselves with the drill regulations. But even a mere layman must admit that the governments of all civilized nations have expended a good deal of thought, labor and expense on drill regulations and that naturally there must be some important reason for such publications.

I have unfortunately never been able to watch the training of the recruits in our regular army, but I know that in a certain foreign army every recruit is given to understand the practical value to him as a soldier of every drill movement. Thus "shoulder arms" must be done in a certain way and not otherwise, because on the march the rifle if evenly balanced is a less tiresome burden; the knapsack must be packed in a certain way and not otherwise, because maximum space and even distribution must be obtained. The medical officer who has not himself carried a litter on a march or who has not been lifted on a stretcher while gravely wounded does not at once realize that the entire drill is calculated to bring out a certain degree of skill in loading, transporting and unloading sick and wounded soldiers.

A few officers I have observed at drill have not learned to give their commands in a manner to insure prompt execution. There is no differentiation between preparatory and execution commands, the commands being delivered without intervals in a monotonous sing-song manner. I have endeavored in the accompanying illustration to show graphically by musical notes the correct and incorrect way of delivering commands.

We know that in field work the ability to read military maps is an essential qualification of all officers. While every physician

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Musical Representation of Commands

INCORRECT

CORRECT

INCORRECT

CORRECT

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has some knowledge of the use of the compass, few can interpret contours correctly.

When teaching our junior officers this subject all explanations failed to produce the desired result, I hit on a simple scheme, the employment of a topographic model. This model shows a few mountains, some high, some low, some steep. I have had the entire model sawed through and through at equal intervals. Removing section after section a sheet of paper is placed over each and the configuration is obtained by a pencil, until the base, representing the lowest valley, is reached. Comparison of the contours thus obtained with the model teaches in one second more than hours of explanation. Another way would be to mold from clay a model of a chain of mountains of variable shape and height, place the entire model in a dish and pour in some dark fluid. By allowing the fluid to run off, say an inch, of the vessel walls, the water level will represent the contour line of a given height. Continue the same maneuver inch by inch until the bottom of the vessel is reached, stopping at each mark to let the student make his contour on paper. The total result will render the interpretation of contours free from all mystery.

After a year of indoor instruction comes the annual weekly camp. Taking the average infantry as an example we see a good deal of regiment drill during the forenoon, a couple of hours of it during the afternoon and then a retreat parade winds up the day's work. The regimental sanitary detachment, however, has no such arduous duty. They assist at sick call in the morning, which means practice in dressing a sore foot or in syringing a "leaky" urethra, and then they drill near the infirmary an hour in the forenoon. The remainder of the day they rest and the rest is really what many have been promised as an inducement to enlist—a vacation at Uncle Sam's expense.

The field hospitals do a little more, but tell the men to strike down the entire tentage and then pitch the hospital camp again and you will see astonished faces among officers and men. The camp is up after many hours of fatiguing work, the camp furniture has been arranged for a week's comfort, why disturb this idyllic scene? A patriotic commander who has the entire equipment purposely all messed up in order to train officers and men to arrange every box, every kit, and place it where it belongs, is sure to lose half his men as soon as the home station is reached. There may be even a resignation or two on the part of subaltern officers. In such cases the fault lies with the officers. They have not succeeded in teaching their men the importance of such prac-

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tice. No man wants to do useless and purposeless work. A great philosopher has said that he can conceive no greater punishment for a criminal than to force him to perform some senseless task, such as filling with water a bottomless barrel.

In my command we have resorted to the following expedient. The evening before a contemplated exercise all men are called to the officers' tents, and are told that early in the morning a big battle will be fought between imaginary troops at a certain distance from the camp. Over four hundred officers and men have been hit by shrapnel by 9 o'clock. We recite what is being done by the regimental aid stations and the ambulance companies. We describe the sufferings of many who have been shot in the head, chest and abdomen, their need for care, shelter and food. We, i. e., the field hospital, have orders to bring up the hospital and get ready to help these heroes. And then follows a bit of sentiment to spur them on. The next morning everybody is willing to do all in his power to break camp, to pack up, to move a little farther away in the camp, to set up the hospital, to start the kitchen, to prepare the operating room, to make up beds in the wards, to carry water, etc. Why? Because everybody sees a definite purpose in that work.

During the warmer season we have spent many a Sunday on hikes not merely for the purpose of marching, but to achieve a definite goal. Before starting the officers and men were given a problem so that the hike became a tactical walk. That there was enthusiasm was evidenced by the loud arguments between the non-commissioned officers and privates during brief rests. Often they would come to me to settle their topographic and tactical arguments.

Even in the army the officers and men spend most of their time with strictly professional duties, many posts having but one hour weekly given up to drills. Many of us have as much if not more, and we have the advantage of working in hospitals and dispensaries. We have not the opportunity for much paper work, but that is not the most important military duty. What we will need in the field we will learn fast enough.

It goes without saying that nothing will be accomplished if we fold our hands in helpless fashion and complain that the pay bill has not yet passed and that we have too little time to accomplish much.

We knew when we accepted our commissions that there was no material benefit in our appointments as public officers. We have voluntarily accepted a trust either because we are patriotic

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or because we love the game for its own sake. Whatever the motive we are all after prestige. This is human. But the degree of prestige rests with us. If the nation comes to realize that we bring sacrifices in time, labor and money for an ideal, the people will respect the uniform we wear. If it was worth while to go to a lot of trouble to secure a commssion it is certainly worth while going to some trouble to make that commission stand for something.

I know that I voice the sentiment of every one here when I say that not one of us will fail to bring the greatest possible sacrifice in the hour when our country will need us. Let us not rest contented in that conviction, let us give the nation something now, and the all at the supreme moment!

In conclusion, I would emphasize the need of reorganizing the sanitary service of the National Guard along these lines.

Selection of medical officers to fill vacancies should be made in the same manner as is followed by the army, viz., competitive examination. Successful candidates should be commissioned in the reserve corps for six months and serve during this time as probationers.

Commissions in the regular corps should be granted on recommendation of the surgeon general of the state when it is found that the probationer has the enthusiasm and ability to hold office and can make the sacrifices in time and money necessary for securing training and adequate personal equipment for service.

Surgeons general should be held responsible for the training of their respective corps and should co-operate with the inspector-instructors in the establishment of correspondence schools, lecture courses and week-end practice marches. They should also be permitted to enforce reasonable measures needed for promoting efficiency among officers and men.

The government, in return, should arrange that all incidentals of all work outside of armory and camp instruction be provided so that individual commanders of sanitary units will not be forced to practice economy to the detriment of efficiency.

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How Can a Full Complement of Qualified Physicians for the Medical Corps of the Navy be Best Achieved and Maintained*

By J. D. Manchester, Surgeon U. S. Navy.

THIS subject, which has concerned the members of the Medical Corps of the Navy for several years, has been assigned me for discussion, and although I have never given it special thought I shall try to point out some of the points which might be considered in advancing the popularity of this very important corps, in order that it may be kept filled by men properly prepared, and that the high standard for admission which has always existed may not be lowered.

I. ADMISSION STANDARD.

This must without question be kept on a high level and graduates from a high standard medical school of unquestioned reputation only be permitted to take the examination for entrance. In my opinion at least one year's training in a general hospital after graduation should also be required. Until two years ago this was a necessity, but such requirement was removed for some evidently good reason. If in the opinion of the Bureau of Medicine and Surgery this year's hospital training debars otherwise excellent candidates, then give such candidates after their admission at least one year's continuous training in one of our largest naval hospitals, where, before being sent to sea, they may gain the broad experience such an institution affords. This training would by necessity be limited to about five of our naval institutions as there are only about that number which carry a daily average of one hundred or more patients. With a smaller number of patients the training is not sufficient and the officer would not have a broad enough field, nor would he be kept busy enough all the time to spur him on.

II. ADMISSION TO MEDICAL RESERVE CORPS.

The present admission of candidates into the Medical Reserve Corps immediately following the completion of their examination, and their remaining in this Reserve Corps until after their completion of the six months' course of instruction at the Naval

* Read at the Twenty-third Annual Meeting of the Association.

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Medical School, Washington, D. C., where all qualified men are sent each fall, is an excellent plan and should be continued. During this time they are under observation, and if any are found who are not temperamentally or otherwise fit for the service, their services can be terminated and they need not be commissioned, as is otherwise the case. This plan, however, has its drawbacks, as many excellent men will not undergo the delay it causes or the uncertainty of their securing their commission in the regular service. A year or more is lost, and with this added on to their age, which must be twenty-six or seven at the least, if they have had proper academic and medical education and served as internes in a civil hospital, makes them twenty-seven or eight years of age before they are finally commissioned in the regular service. This age is therefore two or three years, or possibly more, older than are lieutenants junior grade in the line, when promoted from the grade of ensign. If the date of their commissions, after graduating from the Naval Medical School, dated back to the time of their admission into the Reserve Corps, this loss would be largely overcome and these objections lessened.

III. NAVAL MEDICAL SCHOOL.

The six months' course of instruction at this institution is one of the chief attractions to candidates for admission, and its continuation should be assured. In interviewing many internes in the Chicago hospitals, with a view to prospective candidates, it was found that the subject that most interested them was this school, which has established such a high and justifiable reputation.

At one time a post-graduate course for advanced officers existed, and its re-establisment would be a great attraction added to the service. It would not only attract candidates who have their future advancement to consider, but would be of great benefit and encouragement to officers already in the service.

IV. PROMOTION.

(a) *Constructive Service.*—With the present stagnation in all grades little can be offered as an inducement along this line, and until some plan for steady advancement is inaugurated little can be hoped for. Credit should be given for the extra time spent in acquiring an education and consequently increased age on admission over that of the line officer. Prior to 1913, five years

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constructive service was given candidates on admission, thus compensating them by adding ten per cent to their pay. This was an excellent arrangement and a very attractive feature to candidates, and in my opinion did a great deal to induce candidates to enter the corps. In taking away the constructive service for the time spent at the Naval Academy as midshipmen from the line, there is no just comparison, as these officers are educated at the expense of the government and provided with a fair annuity during that time, while members of the Medical Corps must spend eight years in college in properly preparing themselves for their profession, besides from one to two years in a civil hospital as internes without salary, considering themselves fortunate to have this interneship opportunity, and are glad to labor for the experience gained, receiving only their board, room and laundry.

(b) *Advancement, Years for Grade.*—Promotion by years for grade seems to be the only sure and certain method of promotion by which candidates can be assured of steady advancement. Certainly no encouragement exists at present for any promotion with only ten retirements in the next nine years. A candidate now entering the service has nothing to look forward to after reaching the grade of Passed Assistant Surgeon, and can never hope to reach a higher grade than that of Surgeon. Desirable candidates are not apt seriously to consider a service which cannot assure them something for the future along this line, when the inducements of civil life both professionally and domestically are so much greater than in a naval military institution.

If these candidates could be assured, for instance, that three years would be spent as Assistant Surgeon, seven years as Passed Assistant Surgeon, eight years as Surgeon, eight years as Medical Inspector, and would reach the grade of Medical Director after twenty-six years service, or at the age of fifty-three, considering twenty-seven as the age of entrance, they would have something definite to look forward to, and this, in my opinion, would be a tremendous inducement to attract valuable men who otherwise would never consider the naval service. This advancement would be only a fair one, and one to which no legislator could certainly object if he knew the conditions, the great necessity for competent men in our corps, and the difficulty which has been experienced in the past to get such men interested, as is shown by the large number of vacancies existing for the past several years.

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V. CRUISES OF TWO YEARS, DUTY ON HOSPITAL SHIPS AND IN MEDICAL CENTERS, ETC.

At sea a medical officer is very much limited in professional work inasmuch as serious and interesting cases which are apt to be sick for some time are transferred to a naval hospital or to a hospital ship, thus removing the opportunities which the care and treatment of such cases would offer, and limits his work to the routine of ship work.

Although the ship's routine work is an important and interesting one for a medical officer and includes quite a broad field, still the purely professional work is limited, and life aboard ship not very conducive to arduous study with the many and constant interruptions. In my opinion a cruise of two years instead of three would give medical officers greater opportunities for keeping up professionally, by giving them more frequent shore duty, where assignments to hospitals and naval stations would give them more frequent opportunities for doing professional work themselves, and also permit them to visit clinics, take post graduate courses and get in touch personally with new and advanced work. Coming thus in contact with medical and surgical work, one is spurred on and given greater incentive for professional study. In order to accomplish this all officers should be given duty occasionally in medical centers where such advantages of clinics and post graduate courses can be secured, and in large naval hospitals where personal contact and care do so much to keep one professionally interested.

An excellent suggestion has been made that junior medical officers in the fleet do short terms of duty on the hospital ship, thus giving them all an opportunity to keep in touch with the professional work of the fleet and keep them interested and ambitious professionally. Here they have an opportunity to see a large amount of work, both medically and surgically, and to study the cases with the assistance of the excellent professional library that such a ship affords.

VI. INTERVIEWING STUDENTS AND INTERNES.

A greater effort should be made by all officers to get in touch with medical students and hospital internes and get them interested in the service. This applies especially to officers doing duty in cities where medical schools exist. It would also be advisable for the Bureau of Medicine and Surgery to detail, two or three times a year, special representatives to address

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the students in these schools and the internes in the large city hospitals. In this way they would become acquainted with the service, those especially interested could be kept track of and occasionally communicated with and be furnished with literature. By frequently bringing the service to their attention it is believed much would be gained.

In medical school centers where a naval station is not immediately convenient, as in Chicago, Baltimore, St. Louis and San Francisco, special boards could be convened once or twice a year at the most convenient time for applicants, and the dates of such convening well advertised months in advance. It is thought that this, together with keeping in constant touch with possible prospective candidates, will be of great advantage and result in success. While on recruiting duty in Chicago in the winter of 1910 and 1911, a great effort was made by the writer to get internes in the large Chicago hospitals interested. Over two hundred letters were written and many internes seen personally. The great objection made by these men was the uncertainty of steady promotion, which with the long cruises and the lack of domestic life deterred most of them from thinking seriously of the service as a vocation. Had some steady promotion been assured them, the other objections could in many instances have been overcome. Men after spending years in college and thousands of dollars in an education must be assured of something definite before accepting life in the naval service. It is also thought that the inactive members of the Medical Reserve Corps, consisting as they do of well-known physicians and surgeons throughout the country generally, might do a great deal to interest candidates in the service if an effort were made to make them see the service needs and get them interested in the question. As they are already sufficiently interested in the service to join the Reserve Corps, it is thought a great deal of assistance could be secured from them along this line if their attention were properly brought to the matter.

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Two Non-Military Tours of Duty of Indiana Ambulance Company No. 1.

By A. Golding Chittick, Captain Medical Corps, Ind. N. G.

AMBULANCE COMPANY NO. 1, Indiana, has had two non-military tours of duty that have been slightly out of the ordinary. I am reporting them because, I believe, that by doing some such work the medical department not only gets some much needed practice but helps establish itself with the people of the state.

While on the first of these tours of duty the company was nominally under the orders of the Adjutant General, but the course to be taken at any time was left entirely to the company commander. In the second instance the company worked under no order from the headquarters—in fact, had been at work for three weeks before it was generally known. This was due to the fact that the company, as such, was not on duty.

When a part of northern Indiana was suffering from the floods in March, 1913, Frankfort, the home station of Ambulance Company No. 1, was the only town to the south to which Logansport could get any word. Following its request for assistance the governor ordered a special train to carry a carload of necessities from Frankfort. When all was ready the question of who was to go with the train was solved by detailing four hospital corps men. Two days after their arrival several companies of infantry were sent to Logansport. Six days after the floods started an officer of the U. S. Public Health Service visited Peru, a city about twenty miles up the river. All reports had been to the effect that all was well, a general cleaning up was in progress, a hundred deputy sheriffs had been sworn in, and that no troops were needed—or wanted. After his inspection the officer wired the governor to send troops and requested the ambulance company. Twenty-two men and an officer arrived at Peru at 6:30 p. m. on the seventh day after the flood had started. The condition was not at that time what most persons would call "well in hand." While at no time was the city under martial law, the officer in charge of the company acted not only for the governor but for the State Board of Health as well, and a request that certain places be cleaned up, saloons be regulated, etc., was promptly attended to. No attempt will be made to detail the

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work done, but the first step was a complete sanitary survey of the entire city. This was made by the hospital corps men. The data gathered included the condition of every house, cellar and outbuilding, the disposal of wastes, the water supply and the location of all dead animals. Wagons each with driver and two laborers were then issued to hospital corps men, who were each given a district to police. Four dumps were established with a sergeant and squad of laborers at each to see that sufficient crude oil was used. A guard was placed over the canal running through the town, for before our arrival this had been getting whatever refuse had been hauled. Several carloads of lime and disinfectants were ordered and issued as soon as they arrived. The administration of typhoid prophylactic was started, the work being done by the city physicians free of charge. The company was on duty eight days. The city government was not molested and the civic committees looked after the needy. The expense was very much less than it would have been had infantry been used. Several letters on file from the mayor, council and committees tell how well the city was pleased with the work.

The second tour of duty had to do with an epidemic. Late in 1914 our home station developed quite a few cases of smallpox. Instead of getting better the situation gradually became worse until the people in the country were afraid to come in. The merchants thinking their trade was being ruined at once began to blame the board of health, and demanded a change. The commanding officer was asked to take charge of the situation. After talking it over with the other officers and the men he undertook the task, with the understanding that it was to be done his way regardless of the State Board of Health. An office, with fumigator, was at once established in the armory. Blanks were forwarded to each school with instructions that a report should be in the health office each morning at 9 o'clock. The reports gave us the name of each absentee from school, together with the street address, phone, supposed reason for absence and family physician. Hospital corps men were assigned to each district and each morning saw each new absentee and secured all the data possible. If someone in the family was sick the regular family physician was sent to see what was the matter. When he did not report promptly the officers of the health board saw the sick persons. Free vaccination was announced and in three days about 1,800 took advantage of it. When the company took charge of the situation there were 31 families quarantined with 48 cases. In two days the number had reached 42 families with 71 cases. This

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was the highest number reached. The hospital corps men not only located each case of sickness but acted as guards to see that quarantine was kept, and that those quarantined received groceries, etc. They also fumigated those persons who were entitled to leave quarantined houses and fumigated houses in which there had been smallpox, and in one case acted as nurses. As all the company had been vaccinated previously there were very few who did not perform some duty. The company not being on actual duty all of the men did not have to do this work. The company is largely composed of laborers, and that time of the year found many of them out of work and only too glad to be able to make extra money in that way.

The company was in charge more than six weeks, and through their efficient efforts the situation was speedily gotten under control and the epidemic stamped out.

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Reprints and Translations

Some Observations on 376 Cases of "Frost-Bite"*

By Charles Miller, M. D., Cantab., M. R. C. P., London.
Assistant Physician, London Hospital; Major
(temporary), R. A. M. C.

THREE hundred and seventy-six soldiers have been admitted to the British Red Cross Hospital, Netley, suffering from so-called "frost-bite." One hundred consecutive cases were examined and certain questions were asked of each man. The following particulars have been compiled from their answers: 1. It was freezing at the time of the "frost-bite" in 65 out of 100 cases. 2. Every man was wearing short boots with more than one pair of socks. The majority were wearing puttees. 3. Change of color in the feet, red-blue, blue, or black, was noticed by the patient in 58 per cent of the cases. Among these men it had been freezing in 40 cases. 4. In the remaining 42 per cent the feet were said to be pale. Among these men it had been freezing in 25 cases. 5. In the 58 "colored" cases the first symptom was numbness or "dead feeling" in 37, pain in 14, and painful swelling in 7. 6. In the 42 "pale" cases the first symptom was numbness in 23, pain in 9, and swelling in 10. 7. In all cases the men had been standing in mud or mud and water of a depth varying from 18 inches to 3½ feet for many hours.

It is dfficult in many cases to be certain which is the first symptom, for when a patient arrives at a base hospital some days have already elapsed since he reported sick, and he has to rely upon his memory. But in both "purple" and "pale" cases numbness and "dead feeling" are given in a large majority of cases as the first symptom.

It is clear that it is not necessary for the temperature to be below freezing point for the production of "frost-bite." Further,

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there is an almost equal proportion of "purple" and "pale" cases in which it was not freezing. It would seem that the "pale" and purple cases are produced by the same factors, and may be regarded as different varieties of the same condition; and it may be noted that in a few cases one foot was pale and the other discolored, though it is usual for both feet to be similarly affected.

PHYSICAL EXAMINATION.

1. *General.*—The appearance of the feet differs in many respects. As already said, the feet may be "pale" or "purple." Further, in some of the "purple" feet there may be blisters containing dark and usually offensive fluid and ulceration of varying depth. The "pale" feet are of a creamy-white color, and the skin is dry and inelastic. The foot radiates heat to a distance of two or three inches, the radiation being easily perceptible by the hand. These feet have been said by some observers to present no abnormal appearance, but the characteristic color and the radiation of heat are definite variations from the normal. Further, the subjective symptoms of pain and tingling are most prominent symptoms in the "pale" feet, with the result that the patient becomes a nervous wreck from want of sleep. In the "purple" feet the discoloration is usually deep purple; it is most evident on the ball of the great toe and at the bases of the other toes. The discolored area is anæsthetic, but at its margins sensation may be acute. Blisters are most common on the dorsal surface of the toes and foot. Ulceration may follow the blisters or occur independently, and may affect the skin and subcutaneous tissues only, or go down to bone. In the "purple" feet the subjective symptoms are not so severe as in the "pale" feet.

2. *Nervous Changes.*—(*a*) Normal sensation was never present in the whole of a "frost-bitten" foot.

(*b*) Anæsthesia was present in many cases. In some, the toes only were anæsthetic, a phenomenon most evident in toes that were becoming mummified. In these cases the dorsum of the foot was often very tender. In other cases there was anæsthesia of a sock or stocking area. In several of these cases it was possible to show that there was a larger area of anæsthesia for light touch than for pin-prick. In others it was not possible to get satisfactory answers. In a few cases there was definite anæsthesia of a peripheral type over the region of a particular nerve. The external cutaneous and peroneal nerves are examples.

(*c*) Hyperæsthesia was present in very many cases either by itself or in a foot which was partly anæsthetic. It was impossi-

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ble to make out any anatomical distribution of hyperæsthesia, but its severity was remarkable. Such stimuli as cotton-wool and a current of air would be resented by the patient in the most severe cases Such cases were invariably of the "pale" variety.

(*d*) *Motor Changes.*—The individual toes could not be moved or could be moved only with difficulty. The great toe in the majority of cases was held in the position of dorsiflexion.

TREATMENT.

General.—The chief objects of treatment were to relieve the pain and to secure sleep. Various drugs have been tried—e. g., aspirin, phenacetin, trional, etc. But they were found uncertain in their action, and the most severe cases were given a hypodermic injection of morphia. Many of these patients felt thoroughly ill from the effects of exhaustion and exposure and required good nursing, good food, and plenty of sleep. They seem particularly open to attack by the organisms of influenza and enteric fever.

Local.—1. *Warmth* was useful in a few cases only. If the feet are anæsthetic warmth apparently does good, and again when the feet are nearly well. Bed-socks, cotton-wool covers, or hot bottles will supply sufficient warmth. Radiant heat from electric lamps was tried with good results in a few cases.

2. *Cold* is necessary in the majority of cases. The atmospheric air at this time of the year is cool enough to be soothing to the patient. The usual plan was to leave the feet uncovered and guarded by a bed cradle. A sheet could be placed over the cradle to cut off draughts.

3. *Position.*—The feet were more comfortable if raised on pillows, and by this means any œdema would be made to disappear.

4. *Massage* was beneficial in the majority of cases. At first it has to be very light, but later more vigorous massage with passive movements was tried. The massage can be dry or with some lubricant.

5. *Applications.*—Various oils were tried with equally good results—e. g., eucalyptus oil, methyl salicylate oil, and a mixture of castor-oil, glycerine, and atropine. In the cases of blisters and ulceration dry dressing was employed, some powder, such as boric acid or one of the bismuth compounds being used.

RESULTS.

The results have been good, but there is no guide as to the duration of symptoms. It is the custom to send the patient on

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furlough when he can walk comfortably in boots. Œdema of the feet after walking takes a long time to disappear.

COMPLICATIONS.

Tetanus has occurred in two cases of ulcerated "frost-bite." Both patients have survived. Dry gangrene of toes or part of the foot was fairly common. The dead tissue separated after a line of demarcation had been formed. Sometimes superficial tissues only are affected, and a granulating surface is left. Wet gangrene occurred in one patient, an Indian; amputation was necessary in this case. Thrombosis of the saphenous vein, with a high temperature and rigors, occurred in one case. It is worthy of note that seven patients who had been in the hospital in France for a week with "frost-bite" developed enteric fever a few days after their arrival at this hospital. Many have been victims of the "influenza" epidemic.

CAUSATION.

The causation is necessarily a matter for speculation. Certain factors are doubtless of importance. The lowered temperature, not necessarily to freezing point, is probably of great importance, but in my opinion the immobility of the feet and legs is even more important. The feet are cramped in boots that are made too tight by the extra socks worn; the legs may be kept stiff by badly applied puttees, and the whole limb is held motionless by the inertia of the mud and water of the trenches. The combination of the two factors, cold and immobility, will destroy the vitality of all the tissues of the part—nerves, blood vessels, lymphatics, muscles and skin. The lessened vitality will cause loss of function in these tissues, with venous stasis, impaired nerve conduction, and disordered vaso-motor functions.

Prevention would necessarily be difficult. If a soldier in the trenches wore large waterproof boots in which he could move his toes and leg muscles he might escape "frost-bite," but his activity would be impaired.

In conclusion, I wish to express my opinion that it is incorrect to regard one group of these cases as "neurotic" or "functional." From the cases I have seen I must believe that there is no difference between the forms of so-called "frost-bite" as regards causation. The differences are in the effects on different individuals, and they are merely different manifestations of the same condition. The definite physical characteristics of these "pale" feet which have been diagnosed as "functional" by certain observers are not such as are found in "functional" disorders. It

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can be admitted that these patients are in a condition of nervous exhaustion, but their previous hardships, to which are added pain and loss of sleep from pain, are sufficient causes for their appearance. Further, the different effects of "frost-bite" may be seen in the same individual and even in the same foot. Whatever else may be discovered about this condition, I personally am satisfied that it is primarily physical and only secondarily psychical.

British Red Cross Hospital, Netley.

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A Note on "Frost-Bite"

By F. McG Loughnane, F. R. C. S. Eng., Resident Surgical Officer, Salford Royal Hospital; Late British Red Cross Surgeon, Meerut Stationary Hospital, Boulogne.

"Frost-bite," so called, as it has affected the health of the troops in France, is not only of extreme military importance, but is also interesting from the point of view of treatment, preventive and curative. Out of 160 patients admitted to hospital one evening about 120 were cases of frost-bite alone, and many of them were stretcher cases. These were very bad cases in which both feet were affected, and so painful and tender that no walking could be attempted, even with the aid of a stick. This is the largest proportion I have seen admitted to hospital in any one day for over two months, but fortunately, although some were so serious as to be incapacitated completely for the time being, they would for the most part recover, unlike many of those previously admitted, for whom amputation was often necessary.

CAUSATION.

There seemed to be no selective racial incidence of the disease. Hill men, such as the Gurkhas, suffered equally with the Sikhs and those from warmer parts of India. Indeed, so far as I could gather from the other hospitals in Boulogne, the Indian troops withstood the rigors of a winter in Northern France no worse than did the European soldiers.

A low degree of temperature is the primary etiological factor in classical frost-bite. This, however, was not the chief determinant in France, where the cold at the time was not very severe, although generally the weather conditions were extremely bad. The feet alone suffered. I failed to see any case among the Indians of chilblains or chapped hands. The condition of the feet was brought about by the accumulation of contributory causes, all tending to produce in greater or lesser degree circulatory stasis. These were cold, wet, fatigue, the wearing of tight boots and puttees, and prolonged standing, conditions difficult to preclude in trench warfare in winter time, when soldiers have to stand for many hours over ankle-deep in mud and slush. In regard to boots a vicious circle develops. The wet leather

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shrinks and presses on the feet, thereby setting up traumatic inflammation and swelling, which swelling in turn increases the pressure from the boots. I think that in most cases ill-fitting and too tight boots are direct predisposing causes, though these are aggravated and brought into play by constant cold and wet. "Boot-bite" and not frost-bite might be a more correct term. The number of cases showing definite pressure lesions in places usually caused by boots—viz., the prominences of the toes, the inner side of the hallux and heel—was very great. In many of the cases a considerable degree of septic infection was manifest, which is not surprising considering the general lack of care which was often taken in regard to personal hygiene. In fact, it was this seriousness of infection which chiefly determined the gravity of the case.

SYMPTOMS.

Though not easy to ascertain the exact pathological conditions present in frost-bite, few amputations being performed in the early stages, unless serious sepsis or moist gangrene supervenes, yet on the whole the impression one gathers is that of a low-grade inflammation, secondary to vascular changes, affecting not only the skin and superficial tissues, but also the deeper structures, such as muscles, tendons, joints and bones. Many of the patients complained of pain in the bones and muscles long after all other signs and symptoms had disappeared. I had to amputate in two cases only. In one septic moist gangrene had developed in one foot, and in the other case emphysematous gangrene. When, naked-eye, the parts were examined after amputation, there was found to be an excess of fluid in the cellular tissues, tendon sheaths, and ankle-joint. The subcutaneous fat was yellower than usual, the muscles pale and flabby, and many patches of subcutaneous hemorrhage were scattered about. The skin in places was obviously necrosed, and often the necrosis extended down to the tendon sheaths. The epidermis was soft and succulent, and could easily be rubbed off.

Clinically many different types of these frost-bitten feet may be recognized, according to the stage at which they are first seen, but in a broad classification may be arranged as follows: (1) Pain; (2) swelling; and (3) gangrene. This is in accordance with the predominating sign or symptom. The number of cases with pain alone, however, were remarkably few. As a rule pain and swelling were both present. Of the varieties of gangrene—dry, moist, local and spreading—the commonest obtaining was

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a dry, local gangrene. Dry gangrene was sometimes associated with swelling, but as often without.

In general appearance the feet showed marked variation. Some were extremely swollen and œdematous, with tense, shiny skins. In others there was little if any swelling, but in patches the skin was blanched and crinkled or stretched. When much swelling was present careful inspection revealed increased vascularity of the skin, which could be rendered much more evident, however, by using gentle pressure with the finger, thus effacing the superficial circulation, and noting the different effect from that produced thereby in a normal area of skin elsewhere. The redness of inflammation was always difficult to detect in the Indian skin by inspection alone.

The skin was generally of a dark, purple-blue color, more intense on the dorsum than on the sole, which, except in very pronounced cases, seldom showed any marked change. Peripherally this dark color shaded insensibly into the normal dark color of the skin. In the average case a definite color line of demarcation was seldom seen. Blebs frequently formed on the dorsum of the foot. They were subcuticular and often multilocular. Usually more than one were present. They contained dark, blood-stained fluid; seldom pus even when elsewhere the foot was obviously infected. The skin on the prominences of the toes might be dry and shriveled and quite hard. On the inner side of the big toe and heel a circumscribed, dry, gangrenous patch was not frequently the only lesion, unaccompanied by general swelling of the foot. The appearance was that of a large dry scab which took some time to slough off, leaving, when it did, a raw granulating surface which healed slowly. In some cases the swelling and œdema were very marked, and involved not only the foot but extended up the leg to the knee. The swelling was most tense over the foot, which was very painful, especially when the plantar fascia was stretched. Pitting on pressure was not characteristic of the œdema; it occurred principally on the leg.

Pain and numbness were the chief symptoms complained of. The former was never very severe, and seldom required alleviation by drugs. Generally local, it was occasionally of a neuritic type, shooting up the leg to the knee, and in one case even as far as the hip. The pain was tingling, pricking and very persistent, being present for a long time after all signs had disappeared. Occasionally, when the feet were numb, a neuritic pain extended from the feet upwards. No anatomical nerve area

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was affected, sensory changes being either diffuse over the whole foot or occurring in patches. The calf muscles at times were very painful.

To touch, the skin of the feet seldom felt cold, and not infrequently the only sign of lowered vitality was irresilience of the tissues. A diminished elasticity could be demonstrated in almost every case, and was a constant precursor of gangrene. It was always present beyond the edge of a definitely gangrenous patch.

Tenderness was a well-recognized feature. Gentle palpation could generally be carried out with comparative ease, but anything resmbling rough handling or firm pressure was sincerely resented. It was a deep tenderness involving muscles and tendons rather than the skin and subcutaneous tissues. If the feet were at all bad the muscles of the calf were in most cases extremely tender. This tenderness had little relation to pain and swelling; it was present when these were absent, and was most marked when all three were present.

Many of the cases ran a temperature from 99° to 100° F. These latter were bad cases of sepsis and emphysematous gangrene, and fortunately were comparatively few. In these cases the odor from the feet was most offensive, and the patients showed marked signs of toxæmia. Very seldom were both feet equally bad, though some of the cases sent to England looked as though they might require amputations at a later date—probably a Syme on one foot and a Lisfranc on the other.

TWO CASES OF AMPUTATION.

Early amputation was never resorted to unless rendered urgent by the extreme toxic condition of the patient, and fear of spreading infection. The way doubtful cases cleared up under treatment was astonishing; and it was very gratifying to see how cases which on admission seemed so hopeless as to make conservative treatment appear futile, recover to such an extent that the resulting deformity consisted merely in the loss of a toe or toes. In the two following cases, however, prompt radical treatment became necessary early:

CASE 1. *Bilateral Frost-Bite.*—Patient had been engaged in digging trenches, but did not sleep nor stand about in them. There was no frost at the time. After five days the feet became painful and swollen, and he was treated at a front hospital for a week when, no improvement having taken place, he was sent down to the base. The right foot was a livid, purplish blue, very swollen and œdematous, with blebs on the dorsum. The œdema

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extended up the leg, pitted on pressure, and gave a slight crackling sensation on palpation. The leg was very painful. Temperature 102° F. The foot was powdered, swathed in a voluminous dressing of cotton-wool, and raised on pillows. The œdema of the leg subsided, no further crackling could be obtained, but the stench from the foot was much more overpowering, and the temperature rose to 103°. A week after admission I performed a Farabœuf's amputation below the knee, and left in a wide drainage tube. Two days later, as the temperature had not fallen, and a few bubbles of gas appeared in the wound, I removed all the stitches and treated the stump as an open wound with hydrogen peroxide 10 volumes and carbolic acid 1 in 40. Next day the temperature fell to 100°, and by the end of a week the stump was clean and healing. The patient's general condition, very bad before the operation, improved rapidly as a result of the amputation. The left foot had only dry gangrene of the toes and anterior tarsus.

CASE 2. *Bilateral Gangrene.*—Left foot was dry with only the toes affected. The right was moist and stinking. Œdema not very marked. Temperature 102° F. A line of demarcation had formed above the ankle. I performed a Farabœuf's amputation below the knee, and the stump healed well by first intention.

GENERAL REMARKS ON TREATMENT.

The subject of treatment is a wide one, and will be considered in its three phases—preventive, active, and convalescent. As in the case of a good many other complaints, preventive treatment is the most difficult to carry out. There is little doubt that if the men were able to observe the rules of ordinary cleanliness and to change their wet boots and shoes regularly few cases of frost-bite would be recorded. Necessarily recourse must be had to other means. Some of these, however good in theory and at other times, are fanciful and impracticable in an emergency. I discussed this with a traveler whom I met in Boulogne, who had had considerable winter experience for many years in Northwest Canada. I was informed that there, among seasoned travelers and backwoodsmen, a case of frost-bite hardly ever occurred, no matter how cold and wet the weather; and he suggested that it might well repay the Government to include in the army some Northwest Canadians, whose sole duty it would be to attend to the welfare of the soldiers' feet. He recommended that several pairs of moccasins should be worn over one or two pairs of thick woollen stockings. The moccasins,

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made of skin, are light, water tight and roomy. They will withstand any amount of hard wear on soft, wet ground, and would be admirably adapted for use in the mud and slush of the trenches. The outer pair or pairs could be removed and dried when the occasion offered; the innermost pair never become wet. Moccasins, however, could not be used for marching purposes, as they wear out on hard ground, and the manner of walking in moccasins is quite different from that in boots. Moreover, this scheme is impracticable, for neither, when the need is urgent, could the requisite number be obtained in the desired time nor the troops taught how to use them properly. The wholesale adoption of rubber boots, which would be equally beneficial, is also impracticable. A remedy exists, however, in improving the foot-gear commonly employed. The boots worn are too small, ill-shapen, and the leather of the uppers too hard and unyielding. The boots need to be at least two sizes too large to allow for the comfortable wearing of two pairs of socks and the swelling of the feet which prolonged standing is apt to entail. Moreover, boots shrink at least one in size when constantly wet and soaked in water. I hardly ever saw an Indian patient with comfortably fitting, roomy boots. They could seldom be laced up properly and frequently would only fit in the absence of socks. I saw many cases come into hospital with the heel part of the uppers crushed down and only the anterior part of the foot in the boot. There was no room for the whole foot.

In the active stage treatment will necessarily vary considerably according to the condition present. The milder cases, showing little, if any, organic change, but much incapacitation from pain and tenderness, should, like the more serious ones, be given absolute rest in bed. The feet should be well powdered and covered with a voluminous dressing of cotton-wool. Too often patients were admitted with a scrappy little dressing inadequately bandaged on. The wool should be four or five layers deep, loosely and thoroughly envelop the whole foot, and extend well up the leg beyond the area of pain and tenderness. The bandage should be very lightly applied, yet firm enough to retain the dressing in its place. Thermogen wool, if available, is the best to use, for it possesses greater heating properties than the ordinary unmedicated wool, but being more expensive it is limited in general use. The dressing need not be changed frequently, but may be left on for four or five days. When pain and tenderness are no longer acute, much benefit may be derived from gentle massage and exercise. Massage, generally with oil, had a decided in-

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fluence in the relief of pain; and in conjunction with movements—active and passive—in shortening the period of convalescence. At first massage should be confined to light, gentle stroking, becoming brisker as the condition of the feet improves, until ultimately resembling the vigorous rubbing of the popular, homely masseur. Movements of the different muscles and joints were carried out at first in bed, at frequent intervals throughout the day, but as soon as the patient's state allowed he was put on discontinuous walking and tip-toe exercises, resting in bed in between time. Hot water bottles and fire have to be avoided as a means of improving the circulation, warmth can always be obtained by cotton-wool and friction. Apart from the danger in exciting a general gangrene when frost-bitten feet are placed too near the fire, due to a sudden increase of fluid in the tissues consequent on a too rapid thawing, seeing that sensation in many of the cases is numb or absent, a serious burn might easily be inflicted. This was ever to be guarded against at the Indian Hospital, for when left to themselves the patients were apt to get out of bed and squat on the floor, with their feet resting against the stove in the center of the ward.

In the presence of broken skin or the feet assuming a moist condition, after a preliminary painting of the skin with tincture of iodine 3 per cent in methylated spirit, the limbs, well covered with cyanide gauze and cotton-wool, were raised on pillows three or four feet deep. This was preferable to slinging them from a cradle, for not only was more support thereby given, but the patients complained much less of pain. No matter how well the limb was padded, complaint was invariably made of pain at the level of the sling, and the œdema took a much longer time to subside. Often the painting with iodine was repeated, and this process, in addition to alleviating pain, acted as an antiseptic and dehydrant.

In consequence of this treatment a large majority of the cases which were on the borderland between dry and moist gangrene ultimately settled down and became resolved into the former and much more hopeful variety. The dusting powder I employed was a mixture of starch powder, zinc oxide and boric acid in equal proportions. The mixture is dehydrating, stimulating and antiseptic. Moist antiseptics and fomentations are not to be recommended, even if the case is septic.

Amputation should be postponed to the last, but never delayed unduly at the risk of the patient's life. I have seen one death follow a too strict adherence to conservative treatment. So long

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as the patient is suffering but little from the effects of toxic absorption, and pulse-rate and temperature are satisfactory, the iodine and powder treatment ought to be persevered with. When patients are first received into hospital from the front they seem to be in a much worse condition than reality justifies; their vitality is sapped by exposure in the trenches and the hardships of transport by train and ambulance. Some of them had been without food for two or three days, and arrived at their journey's end constitutional wrecks, broken down mentally and physically. It will hence easily be understood how many of the cases, with foul-smelling and swollen feet, discolored, gangrenous and septic, convey at first the impression that the condition is an extremely grave one, and that life is in imminent danger of dissolution unless prompt radical treatment is instituted. After a few days of hospital comforts, however, with rest, warmth and food in plenty, improvement in general health is rapid, and concurrently the local lesions assume a much healthier and less morbid appearance. When amputation was the only choice the leg was removed below the knee. Other cases, showing ingravescence of the gangrenous area, were removed to England.

Treatment in the early days of convalescence is similar to that adopted in the milder cases. The essentials are massage and exercise, with rigorous avoidance of cold, wet and fatigue. It may be commenced with as soon as the patient will allow it, when pain and swelling have somewhat abated. The most difficult symptom to overcome is pain, which outlasts the swelling for a considerable time and is often of a recurrent character, disappearing altogether for a day or week, then returning with crippling intensity with a change in the weather or the continuance of work, thus in a way resembling chronic rheumatism. When this occurs confinement to bed again becomes necessary. Drugs confer only temporary relief. Frequently one of a fatigue party from among the convalescents had to be readmitted to hospital for painful, occasionally for swollen feet. This was not a mere plea to escape work, for often as not it was a Gurkha who was thus disabled, a man who was always willing to help and seldom a shirker. The sooner a patient is put on exercises, at first in the ward and then as one of a fatigue party, the better. Too protracted a stay in bed or hospital renders the feet very sensitive. A return to the normal condition is best brought about by encouraging a normal circulation which will follow on the physiological use of the parts concerned.

Salford.

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The Psychology of Traumatic Amblyopia Following the Explosion of Shells*

By J. Herbert Parsons, D.Sc., F. R. C. S. Eng.,
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Ophthalmologists have become familiar recently with cases of amaurosis and amblyopia resulting from the shock of the explosion of shells at the front. In many cases direct injury of such a nature as to cause definite organic lesion in the eye or visual paths can be eliminated. The earlier symptoms, which I have not personally observed, have been described and investigated by Dr. C. S. Myers, F. R. S.[2] The history of a typical case is briefly as follows.

A man after more or less prolonged fatigue, induced by marching and exposure in the trenches, is incapacitated by the explosion of a shell in his immediate vicinity. He may be merely knocked down or thrown into the air, and more or less seriously injured or wounded by concussion, shrapnel bullets, or shell splinters. Consciousness is lost for a variable time, but often not so far as to prevent automatic movements; so that the man may walk in a dazed condition to a dressing station. The mental equilibrium at this stage is much disturbed, and all memory of this phase is usually lost. The most striking feature of the case is that the man is instantaneously struck blind. The blindness may be associated with deafness, loss of smell, and loss of taste, but all these are less frequent than the blindness. On examination it is found that there are intense blepharospasm and lacrymation. The lids are opened with great difficulty and examination of the eyes is almost impossible. I am not aware of any record of the condition of the pupils at this stage. In the course of a week or two the blepharospasm diminishes and it becomes possible to examine the fundi. Of course, there may be local injury to the eye, but in uncomplicated cases the eyes are found to be normal. The pupils react to light, though in some cases the reactions are sluggish, and sometimes one pupil differs from the other, being larger,

* Reprinted from *Lancet* of April 3, 1915. A paper read at the Neurological Section of the Royal Society of Medicine on March 25, 1915.

[2] *The Lancet*, Feb. 13, 1915, p. 316.

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or more sluggish in its reactions. The fundi appear to be absolutely normal. By this time probably some restoration of sight has occurred. Light is perceived and large objects may be distinguished. As improvement occurs the patient manages to grope about, usually with his hands outstretched before him, but it is noteworthy that he does not usually stumble up against objects in his path. As soon as it is possible to take the fields of vision it is found that they are markedly contracted, and that indeed to a degree which seems scarcely consistent with the avoidance of obstacles in walking.

The recovery of vision is slow, but eventually it seems always to be complete. In the later stages I have had cases in which the right eye is more affected and recovers more slowly than the left. It may recover to the extent of having only a central scotoma, though this may reduce the visual acuity to 6/60 or less. By perseverance and encouragement the patient may be induced to read a few lines of the types, and I have had cases where the manipulation of weak plus and minus lenses has led to the full 6/6 being read.

Now there are several suspicious symptoms in many such cases. The eye to recover last is often the shooting eye. Some patients show an obvious disinclination to return to duty. Some candidly admit to being in a "blue funk." In all there has been a complete mental upset, sometimes accompanied by hysterical symptoms—outbursts of weeping, etc.—in the early stages. These features render it only too easy to jump to the conclusion that there is often a large element of shamming in the case. It is because there is very grave danger of cruel injustice being done to men who have faced the music and come battered out of the ordeal that I wish to attempt an explanation of the underlying psychology.

In the first place it is necessary to segregate these cases from allied conditions due to organic lesions or to malingering. It is not always easy to eliminate organic lesions of the type which causes so-called retrobulbar neuritis. It is still less easy to eliminate malingering, but as this depends upon a knowledge of the psychology of the individual it forms a prime object of the following discussion.

Since there is no demonstrable organic lesion these cases may be regarded as examples of injuries or wounds of consciousness. This does not imply that there is no neural lesion to account for the psychological disorder, but merely that it has hitherto escaped observation. Without entering into a disputed question,

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which is largely metaphysical, we will adopt the view of parallelism between physiological neural processes and psychological events or changes in consciousness.

As regards cases of the type to which the group under consideration belongs, it may, I think, be admitted that the disorder of the conscious processes varies with the nature and severity of the injury and with the organization of the individual's character. Of these the latter is by far the more complex, and in order to make my meaning clear it will be necessary as briefly as possible to sketch the evolution of character. In doing so I shall be guided chiefly by the deductions of such writers as C. Lloyd Morgan, J. Mark Baldwin, and William MacDougall, whose extraordinarily suggestive work does not seem hitherto to have been sufficiently brought to bear upon pathological problems.

Mental evolution may be divided into three stages, which may be called the sentient, the conscious, and the ideational. The sentient stage is exemplified in those organisms which show simple reflex, response to stimulation. In the lowest stage of all, such as the amœba, the three parts of the reflex arc, the afferent, central, and efferent, are not anatomically differentiated. Organic evolution is accompanied by anatomical complexity and correlation of reflex arcs. The conscious stage is exemplified by those animals, such as birds and lower mammals, in which complex and compound reflexes have become organized into instincts; mere sentience—as we may call it, for we can have no knowledge of what this lowest grade of consciousness really is—gives place to consciousness which is limited to the perceptual plane. The mind of such an animal is conscious only of the percepts derived from concrete objects. It reacts to these primarily in an instinctive manner in accordance with inherited instincts, the motor responses varying according to the species. In addition, however, it has acquired the ability to modify these motor responses in the light of experience. In other words, it is capable of controlling and modifying its instinctive reactions by intelligence. In the highest stage, which is reached so far as we know only by man, consciousness is raised to the conceptual plane. The animal has acquired the ability to think in terms of abstract ideas and to form rational judgments.

Animal life possesses one all-pervading feature, the capacity for and manifestation of movement, and from one end to the other of the scale the movements are teleological or purposive. It is for the metaphysicians to explain—if they can—why a merely sentient organism manifests purposive movements when it is in-

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conceivable that it can in any sense have knowledge of the end which will be ultimately attained. Indeed, it would be a bold assumption that such is really the case if it were not unexceptionably proved that at a higher level many lower animals perform the most complicated instinctive actions for an end—often the preservation of the species—which it is quite impossible that they can foresee. Movement entails wear and tear of protoplasm, no matter how lowly it be, so that the fundamental teleological factor is the search for food, and biological necessity demands the preservation of the species. Hence the behavior of the lowest organisms is directed to two ends, nutrition and reproduction.

The simple reflex is a purposive response to stimulation. The stimulus sets up an afferent impulse which acts upon a central mechanism. The motor response is determined in the center by the nature of the afferent impulse, and in its simplest form is a positive or negative taxis.

The simple instinct, compounded of complex reflexes, shows a similar tripartite nature, afferent, central, and efferent. The afferent impulses so modify the central mechanism as to give rise to an affective state in consciousness. This state is an emotion. It in turn gives rise to a definite and specific conation or striving to a particular end. The conation manifests itself in motor activities all designed to attain that end. In so far as the end is attained the emotion is satisfied and a pleasurable feeling is experienced; in so far as the end is thwarted, dis-pleasure is experienced, and this usually reinforces the conation until eventually the end is attained.

MacDougall enumerates the following primary instincts and emotions of man: the instinct of flight and the emotion of fear, the instinct of repulsion and the emotion of disgust, the instinct of curiosity and the emotion of wonder, the instinct of pugnacity and the emotion of anger, the instinct of self-abasement (or subjection) and of self-assertion (or self-display) and the emotions of subjection and elation (or negative and positive self-feeling), the parental instinct and the tender emotion, the instinct of reproduction, the gregarious instinct, the instinct of acquisition, and the instinct of construction. To these are added certain innate tendencies—sympathy, suggestion, imitation, and so on.

In addition to the afferent impulses received from external stimuli, others are received from internal organs. The sum total of the normal impulses determines the obscure background of consciousness (cœnæsthesia) on which the general tone of mental life depends. The *disposition* of an individual depends upon the

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sum of all the innate instincts with their specific conative impulses. The *temperament* depends upon the influences exerted on the nervous system and through it on mental process by the functioning of the bodily organs, and on the general functional peculiarities of the nervous tissues.

In lower animals the emotions are probably generally experienced in unmixed forms. In man they tend to become combined in organized systems each centered in some object. These organized systems are the sentiments (A. F. Shand), of which love, hate, and respect are the types. Admiration, awe, gratitude, scorn, contempt, envy are complex emotions which do not necessarily imply the existence of sentiments. Reproach, jealousy, resentment, revenge, shame, remorse, sorrow, pity imply the existence of sentiments directed towards some object. "It is only through the systematic organization of the emotional dispositions in sentiments that the volitional control of the immediate promptings of the emotions is rendered possible. Again, our judgments of value and of merit are rooted in our sentiments; and our moral principles have the same source, for they are formed by our judgments of moral value" (MacDougall).

Further, moral conduct is essentially social conduct. Psychology has been revolutionized in recent years by the writings of William James, G. F. Stout, and others, who have thrown into relief the previously well-nigh disregarded fact that the development of the individual mind cannot be explained by isolating it and examining its workings by introspection alone. Each mind is endowed with innate properties; these show inherited variations which cause one mind to differ from another. But in addition to this each mind is subject to acquired modifications due to its environment, and the most important element in its environment is the group of other minds with which it is brought in contact. Advance in moral conduct and the development of *character* are brought about by the growth of self-consciousness and of the self-regarding sentiment. The idea of self and the self-regarding sentiment are essentially social products, so that the complex conception of self ultimately attained is always of self in relation to others. MacDougall distinguishes four successive stages in the development of conduct: (1) the instinctive stage modified only by the experience of pain and pleasure; (2) the stage of control by rewards and punishments; (3) the stage of control by anticipation of social praise and blame; and (4) the stage of regulation according to an ideal of conduct.

Such, in the sketchiest outline, is the mental evolution which

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culminates in the individual character. The analogies which have been arduously elicited from comparative psychology are very illuminating, but they must not be pressed too far. It is true that in physical development the individual rapidly recapitulates the chief stages of the history of the development of the species, but this is true only in a broad sense, and can only be proved of any detail by direct observation. Similarly in the mental evolution of the child, so ably studied by Preyer, J. M. Baldwin, and many others, an instinctive phase resembling that of lower animals, an animistic stage resembling that of primitive races, and so on, may be dimly indicated, but it is doubtful if a baby ever exhibits a complete yet unadulterated instinctive response.

Underlying the psychological development outlined above there is a physical neural development, in which the tremendous stride which the human species has taken beyond the anthropoid ape is most obviously shown in the enormous development of the pallium. The development of the cerebral cortex, however, has not taken place without the most extensive rearrangement of lower structures. Cerebral control does not mean simply control of unaltered units. It means also modifications in the units themselves—modifications in reflex and instinctive responses both in kind and degree.

To sum up this long but necessary preamble, in the cases under consideration we are dealing with individuals of various moral and psychological character, disposition and temperament. Their temperaments are determined chiefly by the condition of their visceral organs and circulation. Their dispositions are determined by the sum total of the conative impulses of certain primitive instincts which vary within relatively narrow limits in their innate characteristics and relative strengths, and are subject to acquired modifications in accordance with the environment of the individual. Their characters are determined by their temperaments and modified innate dispositions, of which the latter are subject to a volitional control which varies according to the social environment and educative experience.

In the evolution from stage to stage through the phases reflex, instinctive, and ideational the earlier stage is not lost, but is made to subserve the new conditions. Thus in the most highly developed species, man, all persist. The earliest or reflex stage persists in the lowest anatomical and physiological level. It can hardly be doubted that the highest is a function of the most recently and highly differentiated part of the cerebral cortex. Whilst, however, we may say that the reflex mechanism is spe-

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cially associated with the lower—segmental—region of the central nervous system, stretching from the mid-brain to the end of the spinal cord, owing to the elaborate rearrangement of structure and function which has occurred, it is at present impossible to localize with any degree of precision the neural bases of the higher instinctive and ideational processes. Their complexity is largely, though by no means wholly, a matter of correlation and association; and the anatomical basis of an isolated physiological function is to be sought rather in a unified system of widely spread neuronic paths—afferent, associational, and efferent—than in any so-called "center."

It is further to be noted that the subservience of the more primitive phases of evolution is associated with what may be described as subservience in consciousness. Afferent sensational impulses, modified by afferent visceral impulses and by other more subtle impulses due to previous experience, lose to a large extent their specific characters and become emerged in a complex cognitive impulse. Even from this the mind springs forward as it were to the emotional state which is thus aroused and becomes concentrated on the efferent conation. Consciousness is focused on the appointed end; all else is relegated to a subconscious background.

The effects of an intense emotional shock on this highly complex system may, *a priori*, be expected to be manifold and complex. Let us consider the effects of a blinding flash of light. In the first place it will produce certain definite reflex results—sudden closure of the eyes, retraction of the head, perhaps recoil of the whole body, and so on. Actual damage may be done to the delicate retinal structures, resulting in temporary or permanent defect of vision. But apart from these effects, the strong light stimulus will have other far-reaching results. Sudden and unexpected visual sensations play an important part in the sensational complex which gives rise to the emotion of fear. They are less potent, as a rule, in this respect than auditory stimuli. Nevertheless, they arouse an emotional state which varies from mere surprise to actual fear. Doubtless the natural instinct of flight is suppressed in the adult by the intervention of the self-regarding sentiment and manifests itself only in a sudden start. If the blinding flash is accompanied by a loud noise the emotion of fear is still more powerfully aroused. If also accompanied by an offensive smell the emotion of disgust is aroused and gives rise to repulsion.

The response of an individual to such a shock depends, therefore, essentially upon the degree of development of his self-

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regarding sentiment. As we have seen, this depends upon his disposition—i. e., the sum of all his innate instincts, his temperament, and the modifications and control which these have acquired as the result of his environment and experience. We cannot, however, isolate the sensational complex which causes the shock from the concurrent circumstances. The response will vary also according to these conditions—e. g., according to whether the individual is alone or one of a crowd, and so on.

(*To be continued*)

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Editorial

A CHANCE TO LEARN THE BUSINESS

A good many of the officers of the Medical Reserve Corps on the inactive list apparently consider that they are doing the Government a favor in accepting a commission and do not appreciate the honor the United States is conferring upon them in permitting them to become members of its *Corps d'élite*. They have accepted the President's commission, they have taken the oath of allegiance, and there they seem to believe that their entire duty to the Government has been performed. They do not appreciate that the average general practitioner or surgeon in civil life, be he ever so capable, cannot be made an efficient medical officer without having the necessary training for this special work, any more than a carpenter can become expert with tools by taking a correspondence course.

The Government is willing not only to give its medical officers in civil life the correspondence course, but it also has provided camps properly equipped and under service conditions, to which it invites the officers of the Medical Reserve Corps, assuring them of competent instruction and the opportunity of observing and participating in the work of the sanitary troops under the same conditions which would obtain in case of what is known technically as an "existing emergency."

Elsewhere in this issue will be found the circular from the Division of Militia Affairs relative to the camps for instruction of officers of the Medical Reserve Corps. We believe that, although there are no funds available at this time for defraying the expenses of the officers who attend these camps, the benefit to be derived from the course of instruction will far more than justify the personal outlay incurred. So far as the expense is concerned it will be a mere bagatelle if compared with the ordinary expense of a pleasure jaunt occupying the same length of time. The equipment required is relatively inexpensive, and this with the cost of transportation and subsistence makes up the total of expense to the student officer. At the various camps the tentage, cots, bedding, etc., will be provided by the Government.

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Although the first sentence of this editorial may appear pessimistic, we believe that patriotism is not dead, and that there are men and many of them in the Medical Reserve Corps who are actuated by purely patriotic motives, but who having had no experience in matters military, do not understand the duties or the responsibilities of a First Lieutenant of the Medical Reserve Corps of the Army. It is to this class of officers that the camps of instruction will be of incalculable value, not only on account of the actual technical knowledge received, but because of the opportunity of meeting officers of the Medical Corps of exceptional ability, who have been detailed for duty at these camps, and the opportunity for discussion with these officers and among themselves of the problems which constantly arise.

It is expected that next year it will be possible to provide transportation and subsistence for the Medical Reserve officers in attendance on these Camps of Instruction.

HELP WANTED

The Department of Current Literature of THE MILITARY SURGEON is one which the editor fondly believes to be interesting, valuable and important. In days gone by this department has benefited by the polyglot services cheerfully rendered and without price by distinguished officers of the various services. By death, retirement and foreign service the journal has lost several of its collaborators from foreign languages and now calls for volunteers to fill their places. We have already provided for the work in English, French, German, Russian, Norwegian, Swedish, Danish and Japanese, but we still have need of help for the proper abstracting of our exchanges from Italy, Holland and the Spanish and Portuguese speaking countries. The Editor will be greatly obliged if readers of THE MILITARY SURGEON who are willing to undertake this work for the good of the service will communicate with him by letter.

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Current Literature

FRANCE.

Bulletin de l'Académie de Médecine.

March 9, 1915.

1 The Incontinence of Urine and Bladder Affections Among Combatants. P. Legneu.
2 The Error of Conheine and the Diagnosis of Tuberculous Chancre. Andre Jousset.
3 Locating Projectiles by Radiologic Indicator. Francis Menuet.
4 Treatment of Typhoid Fever by Rodet's Serum. Remond and Minvielle.
5 Study of Consecutive Frost Bites from Prolonged Stay in the Trenches. J. Parisot and P. Simonin.
6 Frozen Feet and Vasomotor Disturbances Treated by Digitaline. J. Glover.

March 16, 1915.

7 *Twenty-four Observations of Frozen Extremities. Maurice de Fleury.
8 A Painful Form of Wounds of the Median Nerve Among Wounds of War. Pierre Marie in collaboration with Mme. Athanassio Bénisty.
9 A Peculiar Electric Reaction Observed in the Course of the Regeneration of the Nerves. P. Cottenot and P. Rheinhold.
10 Tetracoccus Infection. Fernand Trémolièrs and Pierre Loew.
11 Preventive Physiotherapy in Wounds of War. Laquerrière et Peyré.

7. **Twenty-four Observations of Frozen Extremities, by Dr. Maurice de Fleury,* tabulates the observations in various ways, as regards the character of the lesions; the kind of shoes worn; the wearing of gaiters, puttées and bandage puttées; cold; humidity; change of temperature; alimentation; use of alcohol. The writer finds, in addition to humid cold, prolonged stay in the liquid mud, and pressure of footgear, there is another very important inducing factor, namely, an exclusive flesh diet combined with absolute lack of expenditure of muscular force. Prophylactic treatment, he asserts, resolves itself into frequent changes of men sent into the trenches, together with complete change in alimentation and the forcing of the men to change their footgear.

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March 23, 1915.

12 Cure of Six Cases of Traumatic Tetanus by Intravenous Injection of Antitetanic Serum Associated with Chloral. Barnsby and Mercier.
13 Prophylaxis of Frozen Feet. Orticoni.
14 Apparatus of Immobilization for Complicated Fracture of the Femur. Manson.
15 Early Treatment of Tetanus in Military Hospitals in Time of War. Bacri.

Office Internationale d' Hygiéne Publique.

16 *Prophylactic Measures Against Exanthematous Typhus in the Intrenched Camp at Paris. Letulle.
17 The Screening of Ships Against Mosquitoes. Harald Seidelin.
18 A New and Rapid Method for the Isolation of Tuberculosis Bacilli Directly from Sputum and Feces.

16 **Prophylactic Measures Against Exanthematous Typhus in the Entrenched Camp at Paris, by Dr. Letulle,* deals chiefly with measures of hygienic cleanliness to destroy on the spot the lice in the body of a patient coming from a region where typhus exists, or which is threatened by typhus. It gives in detail the technic of admission to hospital, of the undressing and making of toilet of such a patient and the disinfection of his effects and of the admission room.

SWITZERLAND

Documents Published on the Occasion of the War of 1914-15.

19 Reports of Mm. Ed. Naville and V. van Berchen, Dr. C. de Marval and A. Engster on their Visits to the Prisoners' Camps in England, France and Germany.

This is a most interesting volume containing a detailed report on each camp visited, whether civil or military, and its special characteristics, with details as to treatment in general, to housing or tentage, sleeping arrangements, coverings, food, sanitary installations, clothing, letters and prisoners' means of communication with their friends.

ENGLAND

Journal of the Royal Army Medical Corps.

December, 1914.

20 The Trypanosome Causing Disease in Man in Nyasaland. Part III. Development in Glasina Marsitans. Sir David Bruce, Maj. A. E. Hamerton, Capt. D. P. Watson and Lady Bruce.
21 Phantom Matter (the Radio Elements). Col. R. H. Firth.

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22 *Notes on the Bacteriology of Wounds. Lieut. T. H. Just and B. C. Cantab.
23 *Incineration and Incinerators as Applied to Cantonments in India. Maj. C. F. Wanhill.
24 *The Need of a Short Form of Stretcher for Use in the Trenches. Capt. G. K. Aubrey.
25 Sanitary Statistics. Their Importance for the Study of the Physical and Moral Condition of Troops. Dr. Morals Manchego.

22. **Notes on the Bacteriology of Wounds, by Lieut. T. H. Just and B. C. Cantab,* gives the results of investigations on the bacteriology of wounds of patients admitted to No. 12 General Hospital, established on the Champs de Course at Rouen. All the patients investigated had been brought down from Braisne on ambulance trains and had received their wounds during the fighting on the Marne and the Aisne. The general conclusions of the article are:

1. The source of infection of the wounds is the skin, ærobic cultures from which show the presence of *staphylococcus epidermidis albus and bacillus coli communis,* a common skin contamination where men are lying under insanitary conditions.

2. Anaerobic cultures from certain wounds contain a large grampositive bacillus which is found in earth. The characteristic of these wounds is the offensive odor of their discharge and the sloughing of the tissues immediately around the wound. That the sloughing is due to the anaerobic bacillus is suggested by the rapid manner in which these wounds clear up with the use of hydrogen peroxide, extensive sloughs disappearing after three or four days treatment.

The sloughing wounds all occurred on the legs or abdomen except one or two of the palm of the hand. It was this fact which first suggested that the infecting organism might be an earth micro-organism which was present in the dirt on the man's skin, in which case the distribution of the wounds would accord with what might be expected, as the average British soldier washes his head, neck, arms and chest on every available opportunity, whereas the skin of the abdomen and legs may be unwashed for long periods of time.

This series of cases seems to show that the infection of the wounds is in the main one of low virulence, the damage to the tissues being chiefly effected by the concussion of the shell or bullet and not by the infecting micro-organism.

23. **Incineration and Incinerators as Applied to Cantonments in India, by Maj. C. F. Wanhill, R. A. M. C.,* is an able article

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accompanied by cuts and diagrams. It sums up the situation as regards incineration in India, stating that not only is incineration possible, but that, if properly carried out, it is effective, inexpensive and without danger to health. It is preferable to trenching since the latter encourages the breeding of flies. The system Major Wanhill describes is very simple, no complicated apparatus being required and no especial skill in the working. It can be successfully managed by the Indian cantonment sweeper and should therefore be within the intellectual capacity of men of other races.

24. **The Need of a Short Form of Stretcher for Use in the Trenches, by Capt. G. K. Aubrey, R. A. M. C. (S. R.)*, explains the uselessness of the Mark II stretcher in the trenches, and describes a simple, short stretcher already in use in the brigade. This stretcher is small enough and light enough to be easily carried under a bearer's arm and of sufficient strength to support a 14-stone man. Drawings of the stretcher and of its various parts are given, as are also a table of exact dimensions and careful directions for use with various classes of wounded.

The Journal of State Medicine

April, 1915.

26 Government and Civil and Military Sanitation in the Tropics. Ronald Ross.
27 Public Health and Tuberculosis. Alexander James.

The Lancet.

March 6, 1915.

28 Consideration of Some Elementary Principles Involved in the Treatment of Soil Contaminated Wounds. Alexander G. R. Foulerton.
29 Two Cases of Traumatic Hæmoperitoneum. C. Hamilton Whiteford.

March 13, 1915.

30 Surgical Notes on Serious Head Injuries. A. G. Whitehouse-Cole.
31 War and Typhus Fever. (Leading article.)

March 20, 1915.

32 *Frost Bite in the Present War. C. Max.
33 On the Treatment of Acute Emphysematous Gangrene During the Present War. Experiences in a Clearing Hospital. J. B. Haycraft.
34 A Simple Method of Treating Gunshot Wounds of the Humerus. Paul Bernard Roth.

32. **Frost Bite in the Present War, by Captain C. Max, F. R. C. S.*, gives the general etiology, the pathology, the clinical

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signs and the treatment and the results of curative methods. In treatment four types of counter-irritants were employed, lotions of tincture of iodine, oil of turpentine and liniment of camphor; production of hyperæmia by physical means,—hot fomentations, hot baths, Bier's congestive bandage, massage, electrical stimulation, the faradic current alone being used. None of these appeared to materially effect the speed of recovery. All of them inconstantly relieved pain for a short period and for a time proved comforting. Hot baths half an hour twice daily at 105 degrees F. in two cases definitely expedited the appearance of hyperæsthesia. The treatment could not comfortably be continued after its appearance. Hot fomentations are similar in their effects but are liable to render the skin sodden. Congestion by rubber bandage was applied for one hour twice daily in cases without œdema. It did not appear to influence the disease either way. In two instances it was applied for three or four hours at a time and relieved deep pains for a few hours afterward. This application frequently produced fine ecchymoses in the foot and leg.

Massage in all cases in which it was tried accelerated the onset of hyperæsthesia. At this stage it could only be continued if most delicately applied. In all cases nearing the convalescent period it improved the movement of the toes and so hastened effective recovery.

Stroking the legs and feet with electrodes through which a faradic current was passing proved most efficacious in removing anæsthesia of the functional kind. It had no influence on the recovery of the sensory lesions in the organic cases.

For the various subjective pains local application of pure glycerine on lint proved satisfactory in a few cases and had the merit of keeping the skin in good condition.

Evaporating lotions were found to relieve pain, but in two instances certainly set back the period of recovery.

March 27, 1915.

35 A Note on Certain Peculiar Crystals Found in the Cerebro-Spinal Fluid from a Case of Septic Meningitis. W. W. D. Thomson.

April 3, 1915.

36 Cerebro-Spinal Meningitis with Notes on Two Epidemics. E. Norman Butler.

37 *A Tampon for Controlling a Severed Intercostal Artery, with Other Possibilities. John Furse McMillan.

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38 *The Psychology of Traumatic Amblyopia Following the Explosion of Shells. J. Herbert Parsons.
39 Pneumococcal Infections Treated with Autogenous Vaccines. Nathan Raw.

37. **A Tampon for Controlling a Severed Intercostal Artery, with Other Possibilities, by Captain John Furse McMillan, M. R.C. S.,* is a column article accompanied by several clear diagrams of the tampon and how to use it.

38. **The Psychology of Traumatic Amblyopia Following the Explosion of Shells, by J. Herbert Parsons, D. Sc., F. R. C. S.,* ophthalmic surgeon, University College Hospital, London, and surgeon to the Royal London Ophthalmic Hospital, is a long and detailed article. Dr. Parsons gives first the history of a typical case, which illustrates the characteristic blindness of such shocks. He then outlines the suspicious symptoms which render natural the conclusion that the patient may be shamming in a greater or less degree. Dr. Parsons thinks there is grave danger of cruel injustice being done the patient. To make this clear he gives an explanation of the underlying psychology, and shows that though there is little doubt that the early loss of vision has a definite neural basis, in the later stages the neural basis is of that undefined nature which is associated with so-called functional conditions. In other words, it is neurotic, but it is not "shamming." Dr. Parsons then shows that in these "wounds of consciousness" the medical adviser in his treatment of the case should be guided by the patient's past history, which in these cases should include the difficult investigation of the innate dispositions and propensities of the individual, the environment to which he had been subjected in his home life, his school life and his further career, and last but not least, the motives which led him to join the colors. By injudicious forcing the patient may be wrecked entirely. On the other hand, by careful study of his habits and tastes he may be switched off into other paths which will lead to the restoration of his self-esteem and make him again a useful member of society.

British Medical Journal

February 27, 1915.

40 The Phthisical Soldier at the Front. Sir Thomas Oliver.
41 *Military Hygiene and the Efficiency of the Soldier. P. S. Lelean.

41. **Military Hygiene and the Efficiency of the Soldier, by Maj. P. S. Lelean, R. A. M. C.,* is the subject of a series of lectures arranged by the University of London with the con-

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currence and assistance of the Army Council at the Royal Army Medical College, Millbank. Physical Fitness for War was the subject of the first lecture. The examination of recruits and the preliminary weeding out of the unfit came within the scope of the medical officer as the custodian of the economic interest of the government. He next took up training of the recruits, the ration and its food value, the alcoholic problem, tobacco and the matter of clothing with especial reference to frost-bite. This problem he stated had been solved by the special silk stocking devised by Delépine, which was rendered impervious by soaking in linseed oil, the fabric being afterward rubbed with talc to prevent adhesiveness. This stocking is worn over one sock and another sock put on over it before the boot is put on.

March 6, 1915.

42 The Application of Strong Antiseptic to Infected and Non-infected Wounds. C. J. Bond.
43 Trench "Frost-Bite." Some Observations on Cases Admitted to the Duchess of Westminster's War Hospital. C. Gordon Watson and Charles F. Myers.
44 Extraction of a Shrapnel Bullet from the Knee Joint Through a Vertical Incision. William Robinson.
45 *Military Hygiene and the Efficiency of the Soldier. P. S. Lelean.

45. * *Military Hygiene and the Efficiency of the Soldier, by Maj. P. S. Lelean, R. A. M. C.,* deals with prophylaxis with especial reference to antityphoid inoculation. The author first discusses the theory of immunity, relative insusceptibility to disease, and after presenting graphically the complicated story of phagocyte, antigen, toxin, complement, defensive cell and ambocepter, showed the application of the principles to the antityphoid inoculation, giving its technique and the statistical results, in which he paid tribute to the satisfactory results obtained in the United States Army after the antityphoid inoculation had been made compulsory.

In the third lecture Major Lelean considers the physiological and practical conditions of the march, and calls attention to the detail and infinite care necessary to retain the highest possible efficiency of the marching unit. He first takes up the question of the load carried by the marching soldier, the necessity that he have plenty of sweet tea or coffee before starting on the march, that he should march six and a half miles before having any recourse to his water-bottle and should go fifteen miles before he would need to refill his water-bottle. He states that there should be no fouling of the roadsides, that excreta should be

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buried; he deprecates the resort to alcohol or tobacco on the march and lays especial stress on disability of the feet, which may be prevented by good boots and socks. The soldier's boot should be square toed with the inner edge of the sole in a line parallel through with the inner edge of the heel. It should not be vertically straight at the back of the heel, but should be curved so as to grip the heel and thereby prevent chafing. The boot should be sufficiently large to allow the wearing of two pairs of socks. Soaping the inside of the sock or the use of a dusting powder is effective for the prevention of blisters and abrasions.

March 13, 1915.

46 Sanitation of Camp (Sand and Water). T. Forrest.
47 Cerebrospinal Meningitis, Diagnosis and Prophylaxis. A. Lundie, D. J. Thomas and F. Fleming.
48 *Military Hygiene and the Efficiency of the Soldier. P. S. Lelean.

48. ***Military Hygiene and the Efficiency of the Soldier, by Maj. P. S. Lelean, R. A. M. C.,*** deals with the diseases which form the overwhelming part of the losses of the fighting forces. The causes of these diseases are almost entirely bacterial and mainly preventable. After mentioning the general improvement in sanitation in the British Army, Maj. Lelean speaks of special sanitary measures in relation to actual war conditions, such as the protection of water supplies, the care of excreta, the anti-fly campaign, the questions of carriers and contact and the consideration of the sickness of forces in war. The high rate of sickness was in main attributable to intestinal diseases of the preventable type.

In the fifth lecture Maj. Lelean speaks of the part played by insects in war with especial reference to flies and lice, rats and fleas.

March 20, 1915.

49 Cerebro Spinal Meningitis (Diagnosis and Prophylaxis). A. Lundie, D. J. Thomas and S. Fleming.
50 *Military Hygiene and the Efficiency of the Soldier. P. S. Lelean.

50. ***Military Hygiene and the Efficiency of the Soldier, by Maj. P. S. Lelean, R. A. M. C.*** In this the sixth lecture military organization in the field is taken up, including the relations of medical and combatant officers, the distribution of the medical personnel, the medical staff of the field army including the new formation of the divisional sanitary company consisting of twenty trained men able to act as sanitary inspectors and thirty laborers to do the rough work; the relation of medical to other

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staff officers, the concentration of attention upon the sanitary condition of the lines of communication, and the maintenance of effectiveness in the firing line.

In the seventh lecture Maj. Lelean speaks of municipal organization in relation to sewage disposal, the disposal of excreta by the use of parallel short latrines three feet long, four feet deep and one foot wide which are filled in after two days and new trenches provided. In the trenches on the firing line buckets are used for excreta. He next speaks of incinerators, the soakage pits for urine, and the sanitation and sewage disposal in the small towns in France.

INDIA.

The Indian Medical Gazette

February, 1915.

51 *Is There a Primary Lesion in Leprosy? A. Gwyther.
52 Studies in Malaria. Hugh Scott.
53 Observations at Some Hospitals at Home. G. T. Birdwood.

51. **Is there a Primary Lesion in Leprosy? by Lieut. Col. A. Gwyther, F. R. C. S., I. M. S.,* is written with a view to proving that there are manifestations of the disease of an earlier nature than those generally recognized, and with a view to discovering whether these are the primary lesions of this disease. The paper is in very clear style and the writer arrives at the conclusion that a primary lesion as a source of infection is probable, but till the contents of the blister or other lesion are examined and reported on bacteriologically, no definite opinion can be expressed. There seems to be so little evidence of direct infection in any way from a diseased person to a healthy one that the thought, perforce, arises that the disease is one of locality, that there must be some local condition of soil, water, or whatever the factor may be, which favors the intensification and virulence of the disease. Or else there is a missing cycle in the life history of the causative organism which local conditions favor.

Col. Gwyther thinks it possible that the causative agent of the primary lesion is of the nature of a streptothrix and that the acid-fast types found in the secondary stages or the developed disease may after all prove to be a sporular development. This only time and further investigation will show. The article gives full data of 500 cases.

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The Indian Journal of Medical Research.

January, 1915.

54 The Alimentary Tract of Cimex. F. W. Cragg.

55 Blood Characters: Their Variability and Interdependence. W. F. Harvey and H. W. Acton.

56 On Agglutinins in the Blood of Cholera Cases. E. D. W. Greig.

57 Standardization of Bacterial Suspensions by Opacity. H. C. Brown and E. W. O'G. Kerwan.

58 *The Distribution of Goitre in India. M. McCarrison.

59 Report on a Visit to Various European Ports in Reference to Existing Quarantine and Sanitary Arrangements and the Measures Proposed Against the Introduction of Yellow Fever in India. W. C. Hossack.

60 Preliminary Note on Creatin and Creatinin. H. S. Hutchinson.

58. **The Distribution of Goitre in India, by Maj. H. McCarrison, F. R. C. P., I. M. S.,* is accompanied by a colored map showing districts where goitre has been reported to prevail. The article gives not only the geographical distribution but also the orographical, and the distribution with regard to altitude, the geological distribution, the distribution with respect to rainfall, with respect to atmospheric temperature, with relationship to density of population, and with respect to rivers and canals. The writer concludes that factors of race, habits of life, nutrition, climate, atmospheric temperature and amount of rainfall can be excluded, but that the prevalence of the disease is facilitated by the water-logged state of the country, the insanitary condition of the villages, and the greater area under wet crops. The article then takes up the fluctuations of endemic goitre in India during the past thirty years, the distribution of goitre with respect to social status and occupation, distribution in rural and urban districts, influence of food, distribution with respect to race, to age and to sex, and distribution in animals. and closes with a discussion of waters reported to be capable of curing goitre.

GERMANY

Deutsche Militärärztliche Zeitschrift

September, 1914.

61 The Influence of Alcohol in the Balkan War. Cäsar Heusch.

62 Medico-Military Literature in the Years 1750-1850. Franz Tiehy.

October, 1914.

63 Contributions on Appendicitis in 1912 and 1913. zur Verth.

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November, 1914.

64 Contribution to the Dental Care of Enlisted Men. Krause.
65 The French Sanitary Field Equipment. Bresgen.
66 Contributions on Diseases of the Circulatory Apparatus in 1913. Wiens.

RUSSIA.

Woyenno-Medicinski Journal

April, 1914.

67 The Influence of the Mesentery of the Large Bowel on the Position of the Kidneys. K. Z. Yatzut.
68 Nephrectomy in Tuberculosis of the Kidneys. K. I. Zamurawkin.
69 *Hernia and Hydrocele of the Cord as Causes of Excuse from Military Service. W. Th. Pletenew.
70 A Rare Case of Foreign Body of the Orbit. A. M. Zhurawlew.
71 Comparative Value of Staining Methods of the B. Tuberculosis. A. P. Lapin.
72 A Case of Aphasia Accompanying Left Hemiparesis. I. S. Stepanow.
73 Half a Year in Pekin and a Week in Tokio (1913). Concluded. J. A. Zdrawomuysslow.
74 Immunization of Horses with Living Typhoid Cultures. K. W. Karaffa-Korbutt.
75 *Where Shall the Surgeon Be During Battle: On the Firing Line or at the Dressing Station? S. A. Shanyawski.
76 Two Cases of Extra-genital Localization of the Primary Chancre. A. M. Tuyzhenko.

69 **Hernia and Hydrocele as Causes for Release from Military Service by Pletenew,* is an interesting study in congenital hernia and in hydrocele of the testis and cord with special reference to artificially produced hernia from the standpoint of serviceability. The author comes to the conclusion that practically all hernias, including those of the abdominal wall following operations, disable the patients from military duty, an exception being only such cases in which there is a patulous os without protrusion of a sac. The author believes that whether or not the hernia is entered by abdominal contents, it unfits the man for being a soldier, and he demands that the military regulations be amended to conform to his ideas. Editorially this paper is commented on to the effect that the author's ideas have been taken up by the "Learned Committee" of the War Department and that no change of law is necessary because the concerned articles leave examining medical officers sufficient latitude to reject those who have hernia and hydrocele of a kind likely to interfere with the performance of military duty.

75. **Where Shall the Surgeon Be During Battle—On the Firing Line or at the Dressing Station?* by Shanyawski, is a

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quasi-polemic article based, apparently, on an incident in the last Russian campaign. A certain unit of infantry is sent out as an advance party. This unit is accompanied by a medical officer, a non-commissioned sanitary officer and a sanitary soldier. As soon as the troops have formed and begun firing the surgeon establishes a dressing station in the rear of the firing line in a somewhat protected place. Soon word is sent the surgeon from the commander to come up to the left flank because two infantry men have been wounded and need surgical attention. The surgeon and his assistant crawl to the firing line and still in prone posture render assistance to the wounded, and then in the same manner as they had come they return to the dressing station to find that nine wounded have been waiting for them.

The author asks was that command legal? What if the surgeon had been killed, who would have looked after the wounded then? What sort of surgical aid is it that a surgeon can give while lying on his abdomen? And what sort of a dressing station is it that when wounded get there seeking aid no one is there to look after them?

The dressing stations are there for the purpose of suitable work and to cling to the belief, as is common with laymen, that physicians must go to the aid of the wounded at the place they fell without delay, means to oppose all conceptions of modern medico-tactical functions. The place of the surgeon is at the dressing station!

NORWAY

Norsk Tidsskrift for Militaer Medicine

No. 2, Vol. XVIII, 1914.

77 *Care of the Wounded on the Firing Line. Capt. Crawford.

77. **The Care of the Wounded on the Firing Line, by Capt. Crawford,* is a study of the reports of the surgeons in the Balkan wars. From this study the author concludes that the care of the wounded on the firing line in this day of modern warfare and long range weapons, is of the most vital importance. The best results are obtained by immediate, quick and efficient first aid service. Capt. Crawford suggests that the sanitary personnel be divided into smaller sanitary patrols who follow up their respective sections and render first aid in or immediately behind the firing line. The course of instruction to the sanitary personnel would necessarily have to be rearranged accordingly.

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SWEDEN

Tidsskrift Militär Hälsovärd

No. 2, Vol. XXXIX, 1914.

79 The Military Surgeon Among the Ancient Romans. Fristedt.
80 Report from the Swedish Ambulance Company in Greece During the First Balkan War. Erhardt.
81 Some Experiments with Regard to the Frequency of Diseases Incident to Naval Maneuvers in Winter from 1903-1913. Asplund.

UNITED STATES.

United States Naval Medical Bulletin.

April, 1915.

82 The Operative Treatment of Chronic Intestinal Stasis. S. W. Bainbridge.
83 *Service Use of Intelligence Tests. R. Sheehan.
84 *The Value of the Mental Test and Its Relation to the Service. G. E. Thomas.
85 *Mental Defectives at Naval Disciplinary Barracks, Port Royal, S. C. H. E. Jenkins.
86 *Review and Possibilities of Mental Tests in the Examination of Applicants for Enlistment. A. R. Schier.
87 *Observations on Deep Diving. G. R. W. French.
88 *Tuberculosis. E. Thompson.
89 Observations on Seven Cases of Cerebrospinal Fever. D. C. Cather.
90 *The Posterior Urethra and Bladder in a Hundred Cases of Chronic Gonorrhea. A. L. Clifton

83. **Service Use of Intelligence Tests, by Passed Asst. Surg. R. Sheehan,* and the three following papers are in reality a symposium on this subject by Surgeons Sheehan, Thomas, Jenkins and Schier. The author states first that the high-grade defectives, who really are the only ones that seriously come to the attention of Naval Surgeons, need other methods than the Binet-Simon scale and its like for tests of their mental efficiency. The best criterion of the adaptability of a candidate for enlistment would be a cross section of his career, but this is usually impossible to obtain. The usual tests are of value within well-defined limits, but are unfair for the upper ages. They do not take into sufficient consideration the study of the emotional life which is most important, as is shown in case of moral imbeciles or defective delinquents who have plenty mental ability but lack moral sense, moral judgment, moral stamina and the ability to adapt themselves to environment. The author believes that instead of taking 25 minutes of the recruiting officer's time for the moron test it would be wiser to substitute a period of probation at a training station. This would

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have the advantage of subjecting the recruit to a period of continuous, close observation which would subject him not only to the agreed-upon mental test but would also show his reaction to environment. The article is accompanied by a considerable bibliography.

85. **Mental Defectives at Naval Disciplinary Barracks, Port Royal, S. C., by Passed Asst. Surg. H. E. Jenkins.* The author first discusses the measures for the elimination of feeble-mindedness in this country, notably restriction of marriage, sterilization and segregation. Under sterilization the various methods are discussed. Of these the author seems to favor Roentgenization, thought he distinctly says he believes segregation to be the best means of elimination. He touches upon the immigration question, distinguishes between insanity and feeble-mindedness, describes the pathetic situation of the recruit who is feeble-minded. He discusses in detail the educational standard which should be incorporated in tests for amentia. He gives an outline of the tests in use at Port Royal Barracks. As the recruit with amentia is unable to accustom himself to his new environment his troubles commence early and he deserts, the writer therefore discusses the results of a study of desertions. The author concludes that the proper place to eliminate the mental defective is the recruiting station.

86. **Review and Possibilities of Mental Tests in the Examination of Applicants for Enlistment, by Acting Asst. Surg. A. R. Schier,* reviews some of the results with mental tests at the Marine Corps recruiting station, St. Paul, and suggests the possibilities indicated by their use. The conclusions of the article are that the continued examination of applicants for enlistment with the series of mental tests, previously submitted for trial, has demonstrated the usefulness of these tests in detecting feeble-mindedness. But only in so far as habitual offense, immorality and criminality are the result of feeble-mindedness are such tests of diagnostic value. The method of scoring first used has been modified by working out a point scale, based on the relative difficulty of each test. On the basis of points scored and conduct and efficiency after enlistment, men may be classified into safe and dependable, doubtful and mentally deficient groups. A classification according to mentality could be established only after large numbers of men had been tested and their conduct subsequent to enlistment noted. Investigation looking toward the establishment of such a classification, it is believed,

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would be of value, inasmuch as it would eliminate many hitherto unrecognized mental defectives from the service.

87. **Observations on Deep Diving, by Passed Asst. Surg. G. R. W. French,* attempts first to give a knowledge of the diving apparatus. The defects of the type of diving dress at present in use in the Navy are then enumerated and a number of improvements recommended. The physics of diving, the physiology of diving, diver's paralysis, or caisson disease, time limits in deep water, stoppages during ascent, effects of oxygen pressure, the physical standard of divers, accidents and prevention of accidents, are topics discussed *in extenso* and with clearness and point.

88. **Tuberculosis, by Surg. E. Thompson,* begins with the statement that during the past year 474 cases of tuberculosis have been reported in the Navy. This number does not include readmissions. More than one-tenth of the total sick days were caused by tuberculosis. The number of sick days incident to tuberculosis of the lungs alone is greater than that of any other disease or injury. The consolidated sick days of the three diseases incident of social evil are more than those of tuberculosis. The disabilities of the former are, however, of less importance than the latter, as the percentage of cures is much greater and the danger of immediate extension is prevented by treatment, quarantine and other measures. The diseases of the social evil are voluntary or part of contact, while tuberculosis is imposed. Enforced selection for the Navy is searching, yet, that in spite of this so many cases of tuberculosis occur is alarming. It is computed that the damage caused by tuberculosis in the Navy is the equivalent of 244 men sick every day in the year, that is, to the entire crew of a medium-sized gunboat. Tuberculosis is a real problem in the Navy because it is incident to the character of the life. Every person on a man-of-war is in constant and close physical contact with his associates. The ship is generally warm, with sudden changes in temperature. The air is moist, ventilation artificial. There are drafts and direct sunlight does not reach the living spaces. It is doubtful if tuberculosis could be more readily disseminated anywhere than by an active agent coughing all night in a small moisture-laden space where a large number of his fellows are sleeping in close formation. Incipient and unsuspected cases do the greatest damage, therefore early diagnosis, with emphasis on the word early is of utmost importance. Early diagnosis is difficult and it is probably true that

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most cases are firmly in the grip of the disease before diagnosis is made. Most tubercular men in the Navy report for treatment only after they find that they become easily tired and do not understand why. An examination at that time may not show any physical signs. If suspicion is directed to tuberculosis as a possibility and the temperature is taken at hourly intervals for the entire 24 hours of the day, a very characteristic curve will be platted. The fever may be slight, not more than half a degree, but what should have great weight in diagnosis is the fact that the temperature will slump to a point below normal several times during 24 hours. An erratic temperature about the normal line is characteristic of tuberculosis alone. At this time bacilli may or may not be found in the sputum. The presence of bacilli in the sputum is not a primary sign of the disease, as the organisms cannot be thrown off in numbers until tubercles have broken down. Of course a patient with tuberculosis is not a danger focus until he begins to shed bacilli, but the important point is that he does not come under observation until a period has elapsed since the bacilli began to appear. In incipient cases with small and isolated lesions the bacilli may not be constant and may be missed for a time.

The importance of early diagnosis has directed attention to the refinement of diagnostic methods and the search for special signs, but a fatal difficulty is encountered in lack of standard. The subjects of palpitation, auscultation, percussion, reading of lung plates and other diagnosis topics are fully treated, and the article is furnished with illustrations.

90. ***The Posterior Urethra and Bladder in a Hundred Cases of Chronic Gonorrhea, by Passed Asst. Surg. A. L. Clifton,** is equipped with drawings made by Bassi of New York for Dr. Joseph McCarthy at his cystoscopic clinic. They are taken from cases admitted to the Naval Hospital, New York. Dr. McCarthy's straight tube cystoscope is recommended as the best for posterior urethral work, as it gives an excellent field with a clear-cut outline that is not possible with any other instrument. Surgeon Clifton is of the opinion that while the cystoscope and urethroscope are valuable aids, we are still unable to cope satisfactorily with a large number of cases. Where the urethra alone is affected the condition often clears up rapidly. There are, however, very few chronic cases, in which the prostate is not affected. From an examination with the cystoscope and urethroscope about once a month in the more severe cases, the conclusion is drawn

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that there are a certain number of cases in which, though clinically well, infection lies dormant, only to break out at some future time.

Public Health Reports

March 26, 1915.

91 Efforts to Curb the Misuse of Narcotic Drugs. Martin L. Wilbert.

April 9, 1915.

92 *Interstate Migration of Tuberculous Persons. E. A. Sweet.

92. **Interstate Migration of Tuberculous Persons, by Passed Asst. Surg. Ernest A. Sweet, U. S. P. H. S.* This article is to be continued in a subsequent issue. The points treated in this issue are summarized as follows:

Consumptives are frequently occupants of railway coaches going to and from the resorts.

The number of consumptives traveling to and fro from the resort towns of the Southwest is increasing.

A large proportion are in a far advanced stage of the disease.

Proper precautions to prevent the spread of infection is observed by only a small per cent of the afflicted.

The greatest number of consumptives occupy the day coaches, next the tourist Pullmans, and the smallest number the standard Pullmans.

The sanitation of Pullman cars is systematized, the instructions are specific, and the work is generally carefully performed.

The majority of other coaches are imperfectly cleaned.

The traveling public is responsible for many of the evil conditions which exist.

Railway coaches are a possible source of infection in tuberculosis.

Whether they are or not, their sanitation should be regulated.

As with other public health problems, the control of the migration of the tuberculous is largely a question of education. In bringing this about, the adoption and enforcement of reasonable regulations to improve car sanitation and the personal hygiene of travelers are to be desired.

Virginia Medical Semi-Monthly

March 26, 1915.

93 *Sanitation in Vera Cruz. T. C. Lyster.

93. **Sanitation in Vera Cruz, by Maj. T. C. Lyster,* outlines the reasons for the notoriously unhealthful conditions of the

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Mexican city and shows why some of the well-known communicable diseases spread with difficulty in Vera Cruz even before American occupation and grew less prevalent during our control of that city. The geographical position, topography and sewage system of Vera Cruz are described, as are also the exceptional conditions rendering it more difficult to keep the United States troops healthy while quartered there. The various diseases with which the United States sanitarians had to contend and the various methods of dealing with them are then discussed in turn. The article is both interesting and instructive.

The Modern Hospital

February, 1915.

94 *The British Army Medical Service in the Field.

94. **The British Army Medical Service in the Field* is a very interesting bit of correspondence by a retired surgeon of the British Army, whose name does not appear at the end of the article because the British government objects to army officers writing for publication over their signatures.

The Boston Medical and Surgical Journal

April 8, 1915.

95 The Patriotic and Humane Service of the Red Cross Nurse. Miss Mabel T. Boardman.
96 The Significance of Abnormal Blood-Pressures. Editorial.
97 Venereal Disease in the United States Navy.

New York Medical Journal

98 The Medical Records of the Indian Campaigns of Generals St. Clair, Harmer and Wayne. Otto Juettner.
99 *A Letter from the Balkans. J. Rudis Jicinsky.

99. **A Letter from the Balkans, by J. Rudis Jicinsky,* is, as its name indicates, an interesting bit of correspondence. It contains the following noteworthy sentence: "Senn was right in stating that the fate of the wounded rests in the hands of the one who applies the first dressing."

The Philippine Journal of Science

100 The Germicidal Power of Glycerin on Various Micro-Organisms Under Various Conditions. E. H. Ruediger.
101 The Vitality of the Cholera Vibrio in Manila Waters. Otto Schöbl.
102 The Morphology of the Adults of the Filaria Found in the Philippine Islands. Ernest Linwood Walker.

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103 Pelvimetry and Cephalometry Among Filipinos.
104 A Note on the Physiological Action of the Protoses. R. B. Gibson.
105 The Lymphagogic Action of the Philippine Mango. R. B. Gibson and Gabela Concepción.
106 Observations on Mango Rash. Gabelo Concepción.
107 Milk Poisoning Due to a Type of Staphylococcus Albus Occurring in the Udder of a Healthy Cow. M. A. Barber.

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Reviews

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, February, 1915. Bi-monthly. 185 pp. W. B. Saunders Co., Philadelphia.

This issue introduces many interesting surgical cases, and unstinted praise must be given to the masterly clinical discussion of Fecal Fistula.

We are, however, again constrained to point to the great need of better editing of the *Clinics*. We have emphasized more than once that in scientific monographs amphitheater colloquialisms have no place. Thus we are not a bit interested in Murphy's hinting at the revocation of an interne's diploma—if he had graduated from Murphy's school—because he had failed to heed Murphy's teaching not to catheterize a patient suffering from a spinal lesion, nor do we care for a rather drawn out discussion of *mañana, dolce far niente,* as satisfactory or unsatisfactory "cuss words" for the surgeon who will not promptly intervene in certain cases of appendicitis. We have said before, and we say again, that while Murphy's *Clinics* have great intrinsic merit, the form of presentation is often anything but dignified.

STUDIES IN ROENTGEN-RAY DIAGNOSIS WITH ESPECIAL REFERENCE TO THE GASTRO-INTESTINAL TRACT, by Captain A. W. Christie, M. C., U. S. A., Bulletin No. 7, War Department, Office of the Surgeon General. Washington, D. C., 1915. 8vo. 35 pages with 67 illustrations. 30 cents.

The seventh of the valuable treatises which have been issued as special bulletins from the Office of the Surgeon General is written by a well-known expert in Roentgenology, and has been prepared to make permanent record of a number of interesting and instructive cases of gastro-intestinal disease which have been studied in the Roentgenologic laboratory of the United States Army Medical School. Nearly all the cases reported have had the Roentgen-Ray findings checked either by operation or autopsy. A short account is given of the evolution of Roentgenologic examination of the gastro-intestinal tract and a short description is

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appended of the signs which have proven of value in the diagnosis of various gastro-intestinal lesions.

PAGES D'HISTOIRE, 1914-1915, a series of brochures dealing with various phases of the Pan-European war from the French standpoint. Librairie Berger-Levrault, Paris and Nancy, 1914-1915. See April issue of MILITARY SURGEON, for Numbers 1 to 21 inclusive.

22. DIPLOMATIC POURPARLERS.—June 16 to 29, August 3 to 16. The Servian Blue Book.

23. THE HISTORIC SITTING OF THE INSTITUTE OF FRANCE.—October 26, 1914.

24. EXTRACTS FROM BULLETINS OF THE ARMIES OF THE REPUBLIC.—The first Bordeaux Bulletins, October 24 to December 9, 1914.

25 DIPLOMATIC POURPARLERS.—July 24 to August 2. The German White Book.

26. OFFICIAL COMMUNIQUES AFTER THE DECLARATION OF WAR.—From December 1 to December 31, 1914.

27. GERMANY AND THE WAR.—By Emile Boutroux of the French Académie.

28. THE GERMAN FOLLY.—German documents compiled by Paul Verrier of the Sorbonne.

29. THE TWENTY-SECOND OF DECEMBER.—Declaration of the Government. Speech of the President of the Senate. Speech of the President of the Chamber of Deputies. Commentaries by prominent French and foreign newspapers.

30. CHRONOLOGY OF THE WAR.—July 31 to December 31.

31. QUOTATIONS FROM THE ORDER OF THE DAY.—November 11 to November 21.

32. THE "75."—By M. Th. Schloesing, Jr., Member of the Institute. The Cannon. The Range. The Projectiles.

33. QUOTATIONS FROM THE ORDER OF THE DAY.—From November 22 to November 25.

34. THE GERMANS IN BELGIUM.—Louvain and Aerschot. Brussels. Notes by a Dutch witness. Compiled by L. H. Grondijs, ex-Professor of the Technical Institute of Dordrecht.

35. OFFICIAL COMMUNIQUES AFTER THE DECLARATION OF WAR.—January 1 to January 31.

36 and 37. AMERICAN VOICES ON THE WAR OF 1914-1915.—Translations and Abstract.

38. DIPLOMATIC POURPARLERS.—July 19 to August 1; October 19 to November 1. The Second Russian Orange Book.

39. THE FRONT.—Atlas of 32 maps in 6 colors. Preface by Gen. Cherfils. Western Front: August 10 to December 31 in 16 maps. Eastern Front: August 10 to December 30 in 16 maps.

THE FRENCH AND GERMAN ARMIES. Their artillery, rifles, material. A Comparison. By Gen. Maitrot. Librairie Berger-Levrault, Paris and Bordeaux. Price, 1 franc (20 cents).

OUR FRONTIERS OF THE EAST AND NORTH.—The offensive through Belgium. The Defense of Lorraine. By Gen. Maitrot. Librairie Berger-Levrault, Paris and Bordeaux. Price, 2 f. 50 (50 cents).

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Correspondence

HERNIA ADIPOSA OR LIPOMA?

Editor MILITARY SURGEON:

Surgeon Mathewson, U. S. Public Health Service, publishes in the April issue of THE MILITARY SURGEON an interesting report of a case of lipoma in the inguinal canal. This report appears under the misleading heading, "Hernia Adiposa."

Hernia adiposa, or "fatty hernia," is a term properly applicable only to those lipomata which have some topical relation to the peritoneum—hence also lipoma designated as subperitoneal, preperitoneal or subserous. In the case operated on by Dr. Mathewson the pedicled tumor appears to have had no relation whatever to the peritoneum, and the fact that because of its location and mobility, the tumor simulated a hernial, reducible sac, does not justify its designation as a hernia.

I am aware that some distinguished authors classify an incarcerated omental hernia as a "lipoma." This, too, must be objected to. A true lipoma and the omental fat are not synonymous.

Surgeon Mathewson is to be congratulated because the recorded cases of lipoma of the inguinal canal are few in number.

GUSTAVUS M. BLECH,
Major Medical Corps, Illinois National Guard.

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News of the Services

ARMY

Capt. Corydon G. Snow has been granted a leave of absence of twenty-one days.

Lieut. Arden Freer, M. R. C., has been assigned to duty at Madison Barracks, N. Y.

Capt. Thomas C. Austin on expiration of his leave of absence is ordered to Fort Jay, N. Y.

Lieut. John S. Gaul, M. R. C., has been assigned to active duty at Fort Slocum, N. Y.

Lieut. Stanley S. Warren, M. R. C., has been ordered to active duty at Texas City, Tex.

Lieut. Charles G. Hutter, M. R. C., has been assigned to duty at Columbus Barracks, Ohio.

Lieut. Charles W. Sale, M. R. C., has been ordered to active duty at Columbus Barracks, Ohio.

Maj. Bailey K. Ashford has been granted leave of absence for one month, effective about April 26.

Lieut. W. A. Christensen, M. R. C., who has been on duty at Douglas, Ariz., has been assigned to duty at Fort Crockett, Tex.

A daughter, Barbara Mantel, was born on April 10 to Lieut. Morris Fishbein, M. R. C, U. S. A., and Mrs. Fishbein, at Chicago.

A son, Robert George Cole, was born to Capt. Clarence LeRoy Cole and Mrs. Cole, at Fort Sam Houston, Texas, on March 19.

Capt. John B. H. Waring and Lieut. William E. Hall have been ordered to report for duty with the Second Division at Texas City, Tex.

Leave of absence for two months, to take effect on his arrival in the United States, has been granted Herbert W. Yemans, M. R. C.

Lieut. Clifford T. Sappington, M. R. C., Frederick, Md., has been placed on the active list and ordered for duty to Galveston, Tex.

Capt. A. O. Davis reports on three months' leave of absence from the Presidio of San Francisco, Cal., with address at South Bridgton, Me.

Lieut. Col. Paul F. Straub will be relieved from duty in the Philippine Department about August 15, and will then return to the United States.

Col. William Stephenson, chief surgeon of the Central Division, Chicago, has been elected first vice-president of the Army and Navy Club of Chicago.

The resignation of Lieut. Cassius C. Rogers, M. R. C., of his commission in Medical Reserve Corps was accepted by the President, and took effect on April 2.

Lieut. Seaton Norman, M. R. C., has been ordered to active duty and directed to proceed to Fort Slocum, N. Y., and report in person to the commanding officer for duty.

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By direction of the President, Lieut. Marshall L. Price, M. R. C., has been honorably discharged from the Service of the United States, his services no longer being required.

Capt. Corydon G. Snow has been relieved from duty at the Letterman General Hospital at San Francisco Cal., and ordered to duty at the General Hospital at Fort Bayard, N. M.

The Louis Livingston Seaman medal for progress and achievement in the promotion of hygiene and migration of occupational disease has been awarded to Major General William C. Gorgas.

Lieut. Emil H. Webster upon his relief from duty at Fort Brady, Mich., will be granted leave of absence for one month and fourteen days, after which he will be relieved from active duty.

Capt. Wayne H. Crum has been relieved from duty with Ambulance Company No. 1 at Fort D. A. Russell, Wyo., and ordered to duty at the Letterman General Hospital at San Francisco, Cal.

Col. H. P. Birmingham will be relieved from duty at Fort Slocum, N. Y., about the 1st of May and assigned to duty as surgeon of the Eastern Department, with station at Governors Island, N. Y.

Lieut. Sidney L. Chappell has been relieved from duty at Fort Sam Houston, Tex., and directed to proceed to Galveston, Tex., and report in person to the commanding officer of Ambulance Company No. 8.

Lieut. Ralph W. Newton, M. R. C., has been directed to accompany the troops to be sent from Fort Missoula, Mont., to Fort George Wright, Wash., and on arrival at that post to report to the commanding officer for duty.

Lieut. Leopold Mitchell has been relieved from duty at Fort Lawton, Wash., and ordered to relieve Lieut. E. A. Anderson at Fort Leavenworth, Kan., and Lieut. Anderson has been assigned to duty at Fort Brady, Mich.

Capt. Farfield L. McKinney, now on temporary duty with Ambulance Company No. 8, has been relieved from further duty at Fort Caswell, N. C., and assigned to the command of Field Hospital of Ambulance Company No. 8.

Lieut. Thomas B. V. Keene, M. R. C., on his relief from duty at Fort Benjamin Harrison, Ind., has been ordered home, and on arrival to report to the Adjutant General of the Army. Lieut. Keene has been granted two months' leave of absence.

Lieut. Lewis A. Lavanture, M. R. C., who has recently been on duty at Fort George Wright, Spokane, Wash., has taken charge of the practice of Dr. Clyde W. Bice, Ritzville, during the absence of Dr. Bice in the East for post-graduate work.

Lieut. Hew B. McMurdo has been relieved from duty at the Lettermann General Hospital and will report in person to the commanding officer of the Philippine Department, Manila, P. I., for assignment to duty. Lieut. McMurdo on his relief from duty was granted two months and ten days leave of absence.

Maj. John O. Skinner (retired) received from the hands of President Wilson on April 6 a medal of honor authorized by act of Congress for gallantry in action in the Modoc War of 1873. Dr. Skinner was a contract surgeon at that time and the honor is unusual. The deed of gallantry referred to was the rescue of a wounded man while under sharp fire from the Indians.

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Lieut. Victor Clarence Vaughan, M. R. C., professor of hygiene and physiological chemistry in the University of Michigan, Ann Arbor, and president-elect of the American Medical Association, delivered an address before the College of Physicians of Philadelphia on "A Study of Camp and Military Hygiene; Its Sanitation and Its Relation to War Mortality."

Col. Charles M. Gandy, surgeon of the Philadelphia District, notes in his annual report that the progressive improvement in the Sanitary Department since 1908, when the constant non-effective rate for 1,000 was 46.5 as compared with 26 in 1913 and 28 in 1914, the return for nearly all diseases preventable by general sanitary measures, has been reduced.

The Quartermaster Corps has provided two hundred water bags, like those designed by Maj. William Lyster, to be tested under parctical conditions in the field by troops of the Second Division in Texas. These bags are described by Major Lyster in an article in the March issue of the current volume of THE MILITARY SURGEON. It is also expected that a canvas lining will be tested which may be installed in an empty escort wagon, which may then be served by a system of faucets.

The St. Louis Society of the Medical Reserve Corps of the U. S. Army at a special meeting received and adopted a report presented by a committee consisting of Lieuts. E. Lee Dorsett, H. M. Moore and F. E. Woodruff, setting forth the loss sustained by the Medical Reserve Corps of St. Louis in the death of Lieut. Waldemar E. Fischer, testifying to his patriotism, ability, skill and energy, and extending to his family heartfelt sympathy.

It is announced that the authorities are experimenting with a new ward tent in four field hospitals in Texas. The tent is of olive drab canvas and shaped like the ordinary circus tent. The crest of the tent is 40 feet long and the roof slopes at ends and sides to the side walls at at an angle of about 45 degrees. The wall of the tent is about four feet in height. The new tent gives about 96 square feet more of floor space than the three regular tents formerly required for a ward; it affords room for four or six more patients and weighs 250 pounds less than the three regulation tents. It is heated by an oval shaped box stove with a pipe running the entire length of the tent. With the new tent the total weight of war tentage for the field hospital is 3,020 pounds as compared with 4,520 pounds, the weight of the eighteen regular hospital tents.

NAVY

P. A. Surg. C. M. George has been ordered to the Naval Hospital, Newport, R. I.

P. A. Surg. H. L. Brown has been detached from the *Ohio* and ordered to the *Alabama*.

Surg. J. F. Murphy has been ordered for duty to the Naval Recruiting Station at Atlanta, Ga.

P. A. Surg. Reynolds Hayden has been detached from the *Alert* and ordered home to await orders.

Surg. J. R. Dykes has been detached from the Naval Recruiting Station at Atlanta, Ga., to await orders.

Asst. Surg. W. H. Michael, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to the Atlantic Reserve Fleet.

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P. A. Surg. F. H. Stibbens has been detached from the *Annapolis* and ordered home to await orders.

The resignation of Asst. Surg. C. A. Simpson, M. R. C., has been accepted, taking effect on March 18.

Surg. A. W. Dunbar has been detached from the Atlantic Reserve Fleet and ordered to the *Missouri*.

Surg. F. A. Asserson has been detached from the Atlantic Reserve Fleet and ordered to the *Wisconsin*.

P. A. Surg. H. W. B. Turner has been detached from the *Albany* and ordered for duty to the Asiatic station.

P. A. Surg. W. H. Halsey has been ordered for duty to the Naval Training Station, San Francisco, Cal.

P. A. Surg. H. L. Brown has been detached from the *Ohio* and ordered for duty to the Atlantic Reserve Fleet.

P. A. Surg. H. A. Garrison has been detached from the *Maryland* and directed to proceed home and await orders.

Asst. Surg. Overton Brooks, Ill. N. M., has been commissioned as Assistant Surgeon, M. R. C., to date from March 10.

Asst. Surg. G. W. Calver has been detached from the Naval Station at Guam and ordered to the Asiatic Station for duty.

P. A. Surg. G. R. W. French has been detached from the Naval Hospital at Brooklyn, N. Y., and ordered to the *Maryland*.

Asst. Surg. Roscoe Waterhouse has been detached from the Naval Hospital at Portsmouth, N. H., and ordered to the *Montana*.

Asst. Surg. F. H. Bowman, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and ordered to the *Ohio*.

Surg. Archibald M. Fauntleroy has been detailed to make an observation tour of the war hospitals of France, Belgium and England.

Asst. Surg. C. W. Ross, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and ordered to the *Maryland*.

Asst. Surg. E. W. Cress, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to the *Alert*.

Surg. W. H. Rennie has been detached from the Naval Hospital at Boston, Mass., and ordered to the Naval Hospital, New York, N. Y.

Asst. Surg. W. A. Brams, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to the *Missouri*.

Asst. Surg. Henry McDonald, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and ordered to the *Wisconsin*.

Asst. Surg. J. A. Omer, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and ordered to duty on the *Annapolis*.

A. A. Surg. M. E. Rose has been detached from the Navy Yard, Charleston, S. C., and ordered to the Naval Hospital, Washington, for treatment.

Asst. Surg. W. W. Wickersham, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered for duty to the *Prairie*.

P. A. Surg. B. H. Dorsey has been detached from the Atlantic Reserve Fleet and ordered to duty at the Bureau of Medicine and Surgery at Washington, D. C.

Asst. Surg. W. A. Stoops, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to duty at the Naval Hospital, New York.

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Miss Sally W. Byrnes, youngest daughter of Med. Dir. James Carroll Byrnes, was married to Mr. Lawrence Tallaferro Atkinson, Jr., of Norfolk, Va., April 28, 1915.

Asst. Surg. S. L. Conklin, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to duty at the Naval Hospital at Norfolk, Va.

On May 1, Surg. D. M. Carpenter delivered a lecture on "Sanitation" in the course of lectures now in progress at the Navy Yard, Philadelphia, for the Army, Navy and Marine Corps.

Asst. Surg R. A. Torrance, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered to duty at the Naval Hospital at Portsmouth, N. Y.

Asst. Surg. C. I. Wood, M. R. C., has been detached from the Naval Medical School at Washington, D. C., and ordered for temporary duty to the Naval Hospital at Mare Island, Cal.

Surg. T. W. Richards has officially advocated that from a sanitary standpoint a ship's company should be quartered in barracks while their vessel is being overhauled at a Navy Yard.

Asst. Surg. C. S. O'Brien, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and ordered to proceed by the May transport to the Asiatic Station for duty.

Asst. Surgs. Talmage Wilson, M. R. C., and S. M. Taylor, M. R. C., have been detached from the Naval Medical School and directed to sail on the May transport for duty at the Asiatic Station.

Asst. Surg. C. W. Depping, M. R. C., has been detached from the Naval Medical School, Washington, D. C., and directed to proceed for duty to the Naval Station at Guam by the June transport.

Asst Surg. Robert F. Sheehan gave a dinner at the Army and Navy Club, Washington, on April 16, in honor of Dr. Charles M. Byrnes, Baltimore, at which Med. Dir. James D. Gatewood and Surg. Frank L. Pleadwell were among the guests.

Med. Dir. Edward H. Green was placed on the retired list April 18, having reached the statutory retiring age of 62. His last assignment to duty was as president of the Naval Examining Board and Board of Medical Examiners. He has been detached from all duty and ordered home. The retirement of Med. Dir. Green promotes Med. Inspr. Charles H. T. Lowndes to Medical Director; Surg. Lewis Morris to Medical Inspector, and P. A. Surg. Isaac S. K. Reeves to Surgeon.

The Comptroller has decided in reply to a question raised by the Bureau of Medicine and Surgery that "there is no obligation on the part of the Government to furnish medical aid or treatment to enlisted men of the Marine Corps *at all times*, and if they are absent from duty and away from the facilities furnished by the Government for such care, when injured or taken ill, they and not the Government must bear the expense of such medical attention as may be necessary."

Graduation Exercises of the Naval Medical School

The closing exercises of the United States Naval Medical School were held in the lecture room of the school at Washington, D. C., April 15, under the direction of Med. Dir. James D. Gatewood, Commandante of the School. On the platform with Med. Dir. Gatewood were Secretary

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Daniels of the Navy, Surg. Gen. William C. Braisted and the orator of the day, Dr. Paul B. Barringer, formerly President of the University of Virginia. The Secretary of the Navy in presenting the diplomas to the graduating class remarked that the Medical Department of the Navy is one of the largest medical organizations in the world, consisting of 17 large general hospitals, each with a capacity of from 2,000 to 5,000 patients. He praised the equipment and personnel of the Hospital Ship *Solace*, and stated that the next Congress would authorize an additional hospital ship. After praising the medical organization of the Navy and the personnel of the medical hospital and nurses' corps, he referred to the splendid equipment of the Naval Medical School and expressed his gratification at having been able to organize two schools for the instruction of the Hospital Corps. Med. Dir. Gatewood commended the members of the graduating class on the high standard of their work and urged that they should not be satisfied with having completed successfully one worthy effort, but should strive eagerly for new laurels. Surgeon General Braisted paid an eloquent tribute to former Surgeon General Presley M. Rixey, who, he said, had placed American Naval Surgery on the highest possible plane. He urged the graduates as members of the great Navy family to live up to its ideals and make themselves worthy of its traditions. Dr. Barringer in his remarks referred to the flagrant neglect shown in the development of the theories of medicine more than two hundred years ago, and spoke of the great benefit which the human race had derived from such theories as had been successfully developed, and averred that the saving of lives by military physicians would more than counterbalance the losses of the European war even if it were indefinitely continued. The graduating class was made up as follows: Lieut. R. M. Lhamon, honor man, and Lieuts. J. T. Boone, F. H. Bowman, W. A. Brams, F. L. Conklin, W. W. Cress, C. W. Deeping, H. McDonald, W. H. Michael, C. S. O'Brien, J. A. Omer, C. W. Ross, H. M. Stenhouse, W. A. Stoops, S. M. Taylor, R. A. Torrance, C. H. Weaver, W. W. Wickersham, T. Wilson and C. S. Wood.

PUBLIC HEALTH SERVICE

Senior Surg. J. C. Perry has been directed to report to the Bureau, Washington, D. C., for temporary duty.

Asst. Surg. Louis Schwartz has been directed to report for duty to Senior Surg. Fairfax Irwin at Philadelphia, Pa.

Surg. G. M. Corput has been directed to proceed to New Orleans as occasion may demand to attend to necessary business.

Surg. Joseph H. White has been commissioned and promoted to the grade of Senior Surgeon, to date from March 25, 1915.

A. A. Surg. J. E. Brooks has been ordered to Boston for observation and instruction in the medical examination of arriving aliens.

Asst. Surg. Gen. L. E. Cofer has been directed to proceed to Providence, R. I., to inspect the quarantine plant recently installed at that station.

Asst. Surg. Howard F. Smith has been relieved from duty at the immigration station at Ellis Island, N. Y., and directed to proceed to Cincinnati for duty in connection with investigations of pollution of navigable waters.

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Asst. Surg. Gen. J. W. Trask represented the Service at the annual meeting of the Tennessee State Medical Association, held in Nashville, Tenn., April 13-15, 1915.

Asst. Surg. Gen. Wm. C. Rucker has been directed to visit Richmond and Baltimore to confer with the state health authorities relative to regulations for inter-state quarantine.

Surg. H. S. Cummings has been directed to extend the investigation of the pollution of tidal waters to the waters of the states of New Jersey, Delaware and New York.

Surg. L. P. H. Bahrenburg, at the request of the South Texas Medical Society, represented the Service at the annual meeting of that association at Victoria, Tex., April 8 and 9, 1915.

Asst. Surg. Gen. W. C. Rucker, on request of the Secretary of the Navy, has made a sanitary inspection of the buildings and grounds of the Naval Academy at Annapolis, Md.

Asst. Surg. R. E. Wynne has been relieved from duty at the Marine Hospital at Chicago and directed to proceed to the Hygienic Laboratory at Washington, D. C., for temporary duty.

Sanitary Chemist H. B. Hommon has been ordered to supervise the experimental work on strawboard waste now being conducted at Noblesville, Ind., and to outline certain new investigations.

Asst. Surg. H. C. Cody has been relieved from duty at Ellis Island, N. Y. and directed to report to the medical officer in charge of the Marine Hospital at St. Louis for duty and assignment to quarters.

P. A. Surg. W. M. Bryan, on completion of his present course is relieved from duty at the Hygienic Laboratory and directed to proceed to Fort Morgan, Ala., and assume charge of the Mobile quarantine station.

Senior Surg. C. E. Banks, on request of the Commissioner, Bureau of Lighthouses, was directed to administer antityphoid vaccine to the officers and men of the Lighthouse Service of the Sturgeon Bay, Wis., district.

Asst. Surg. Liston Paine has been relieved from duty at the Marine Hospital at St. Louis and ordered to Victor, Mont., and Boise, Idaho, for duty in measures for the prevention of the interstate spread of Rocky Mountain spotted fever.

Asst. Surg. J. G. Townsend has been relieved from duty at the Marine Hospital, Louisville, and directed to proceed to San Francisco, Cal., and report to the commanding officer of the U. S. Coast Guard Cutter *Bear* by April 15, for the summer cruise in Alaskan waters.

Asst. Surg. Gen. L. E. Cofer, on request of the State Commissioner of Health of Indiana, Dr. John N. Hurty, went by way of Indianapolis on April 9 to Richmond, Indiana, where he made a sanitary survey and gave advice regarding the better control of infectious diseases.

Dr. Thomas Houston Dow Griffitts, Springfield, Ill., State Board of Health, was appointed on March 11 assistant epidemiologist, U. S. P. H. S., and ordered to duty at the U. S. Marine Hospital, New Orleans, for field investigation of malaria, under Surg. Rudolph H. Von Ezdorf.

Senior Surg. Henry Rose Carter has been promoted to be Assistant Surgeon General under the act of Congress approved March 4, which provides for the promotion of officers who have done notable work in the Canal Zone. Dr. Carter has been asked by the Mayor of Baltimore to take charge of the mosquito crusade in that city.

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NATIONAL GUARD

Lieut. Edward W. Hurley, M. C., Mass. V. M., was commissioned Captain to date from April 3, 1915, and assigned to duty with the Ninth Infantry.

Lieut. Mason D. Bryant, M. C., Mass. V. M., was commissioned Captain, to date from March 4, 1915, and assigned to duty with the Sixth Infantry.

Dr. Lucian Bayard Mitchell has been appointed First Lieutenant, M. C., Florida N. G., vice Harrell, resigned, with rank from March 26, 1915, and has been assigned to duty with the Second Infantry.

Lieut. Edward Whitney Bodman, M. C., Ill. N. G., assigned First Cavalry, was married to Miss Julia Lord Barry of Montclair, N. J., April 19. Lieut. and Mrs. Bodman will reside in Winnetka, Ill.

Col. Joseph K. Weaver, Surgeon General, in compliance with Circular No. 1, I. G. O., February 16, inspected Field Hospital No. 1, Pa. N. G., at Pittsburgh April 20 and Field Hospital No. 2 at Philadelphia April 27.

All the Sanitary Companies in Ohio, including the First Field Hospital of this city, have received during the last month their full quota of wagons and harness, making them complete except only the necessary horses.

Dr. Paul J. Jakmauh was commissioned First Lieutenant M. C., Mass. V. M., on February 2, 1915, and assigned to duty with the Ninth Infantry. Lieut. Jakmauh enlisted in "B" Company, Ninth Infantry, in 1906, and since 1912 has been in the Hospital Corps.

Dr. George M. Kirkpatrick, 192 South Common Street, Lynn, Mass., having successfully passed his examinations for entrance into the Medical Corps, has been commissioned First Lieutenant and assigned to duty with the Sixth Infantry, vice Captain Bryant, promoted.

Capt. Frederick L. Bogan, M. C., Mass. V. M., was commissioned Major March 24, 1915, and assigned to the Ninth Infantry. Maj. Bogan enlisted in Company "A," Ninth Regiment of Infantry, on July 5, 1904, and on June 26, 1905, was transferred to headquarters as a Hospital Steward. He was commissioned First Lieutenant and Assistant Surgeon October 9, 1905, and was promoted to Captain, January 7, 1910.

Lieut. John D. Spelman, M. C., Ohio N. G., on duty with the First Field Hospital, Cincinnati, was commissioned Captain Medical Corps April 13, and was presented by the members of the Corps with a gold wrist watch at a dinner given in his honor by the officers and enlisted men of the Field Hospital. Capt. Spelman left for Washington April 15 to receive his final instructions from the American National Red Cross, under whose auspices he is to work in Belgium. He sailed from New York April 17.

The Sanitary troops of Ohio, comprising First Field Hospital, Cincinnati, Second Field Hospital, Columbus, Third Field Hospital, Youngstown, First Ambulance Company, Toledo, and Second Ambulance Company, Columbus, comprising a total of 22 medical officers and over 200 Hospital Corps men, will hold their summer camp at Sparta, Wisconsin, July 11 to 20 inclusive. This will be a joint camp of instruction for the Sanitary troops of the Central Division, and will be in continuous operation from July 11 to August 30. Medical officers of the Army will be in command and will have charge of the instruction. In addition to

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the companies of the Organized Militia there will be present Field Hospital No. 1 and Ambulance Company No. 1 of the U. S. Army, with full complete Field Hospital equipment and ambulances, pack trains, etc. The time will be occupied in field medical maneuvers on a large scale, that of a Division in active service, locating and erecting first aid stations, dressing stations and field hospitals, collecting, dressing and transporting wounded, handling wagons, ambulances and pack mules, with instruction in riding, driving and caring for animals, packing wagons and pack saddles, cooking, record keeping and sanitation, both camp and personal. The five Ohio companies will start from their home stations on Saturday, July 10, and assemble at a point in northern Ohio, whence they will go by special train via Chicago and Milwaukee to Sparta, the train consisting of tourist sleepers, with baggage and kitchen cars, the meals being cooked and served by the company cooks en route.

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General News

Dr. Benjamin Jablons, New York City, on duty with the section for the wounded of the American Hospital of Paris, Neuilly-sur-Seine, was married to Miss Audrey Frances Jakobi of New York City, in Paris, March 9.

Camps of Instruction to Be Held During the Coming Summer.—During the approaching summer it is proposed to establish camps of instruction for officers of the Medical Reserve Corps, U. S. Army, inactive list.

The location of these camps, together with dates, will be as follows:

Fort Sam Houston, Texas	June 7-12
Fort Oglethorpe, Ga	June 7-12
Tobyhanna, Pa	June 28-July 3
Fort D. A. Russell, Wyo	May 31-June 5
Sparta, Wis	July 12-17
Presidio of Monterey, Cal	June 7-12

It is proposed to provide at these camps a complete field hospital, ambulance company, regimental infirmary and such other equipment as may be necessary to offer every facility for a thorough and practical course of instruction in the duties of a medical officer in the field. These camps will be for a period of six days, exclusive of time consumed in travel. Instruction will begin on Monday morning and terminate on the afternoon of the following Saturday.

It is believed the course of instruction will be of great value to those attending, especially in view of the excellent facilities for giving a thorough and practical course in field work. At the present time there are over 1,200 officers in the Medical Reserve Corps, inactive list. Of this number, excepting the few who have had active experience with the Army, 90 per cent know little of the duties required of a First Lieutenant in the Medical Corps. Officers of the Medical Reserve Corps will not only receive valuable instruction pertaining to the duties of medical officers, but the camps will also serve the purpose of bringing together officers of the Medical Reserve Corps from different locations, affording an opportunity for discussions that should be of benefit to the Medical Reserve Corps as a whole as well as to the individual officer.

It is regretted that there are no funds available for defraying personal expenses in connection with these camps. As a result, those who attend must do so at their own expense, which will include the cost of transportation to and from the camp and the cost of subsistence. This last will be about one dollar per day.

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All officers who attend will be requested to provide themselves with the following field uniform:

1 campaign hat and cord.
1 blouse, cotton or woolen.
1 pair breeches, riding, cotton or woolen.
1 olive drab flannel shirt.
1 tan belt.
1 pair of leggings, leather tan.
1 pair shoes, tan.
Necessary underclothing, towels, soap, toothbrush, etc.

The uniform equipment can be purchased of any military uniform dealer, and it is suggested that the matter of uniform be attended to at as early a date as possible. The necessary tentage, cots, blankets, basins, buckets, lanterns, etc., will be provided at the various camps.

In view of the urgent necessity for the officers of the Medical Reserve Corps to receive this instruction, the Department earnestly requests that they make every endeavor to attend this camp.

Inasmuch as the time available for the organization of these camps is brief, it is further requested that this matter be given early attention and that the Surgeon General's office be notified as soon as possible by those intending to receive the instruction.

Field Hospital and Ambulance Company No. 1 will leave Fort D. A. Russell, Wyoming, the latter part of June, and will proceed by marching to North Platte, Nebraska, at such time as will enable that organization to entrain for Sparta, Wisconsin, July 1.

Field Hospital and Ambulance Company No. 6 will leave Fort Myer, Virginia, about the middle of June and will proceed by marching to Tobyhanna, Pennsylvania.

Any officer of the Medical Reserve Corps desiring to accompany either of these organizations should notify the Surgeon General's office at once. Further, they should state whether or not he will furnish his own mount. If mounts cannot be furnished, ambulance transportation can be furnished to a limited number of officers.

The states assigned to each of these camps for the Medical Reserve Corps will be as follows:

Fort Sam Houston, Texas: New Mexico, Oklahoma, Arkansas, Louisiana and Texas.

Fort Oglethorpe, Georgia: Kentucky, Tennessee, Mississippi, Alabama, North Carolina, South Carolina, Georgia and Florida.

Tobyhanna, Pennsylvania: The New England States, New York, New Jersey, Pennsylvania, Delaware, Virginia, West Virginia, Maryland, and the District of Columbia.

Fort D. A. Russell, Wyoming: Idaho, Montana, Wyoming, Utah, Colorado, South Dakota, Nebraska and Kansas.

Sparta, Wisconsin: North Dakota, Wisconsin, Iowa, Missouri, Minnesota, Illinois, Indiana, Ohio and Michigan.

The Presidio of Monterey, California: Washington, Oregon, California and Arizona.

The Seventh Pan-American Congress will meet in San Francisco, June 17 to 21 inclusive. It assembles pursuant to invitation of the President of the United States, issued in accordance with an act of Congress approved March 3, 1915.

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The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5.00 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the Treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The general railroad rate of one fare for the round trip, good for three months, made on account of the Panama-Pacific Exposition at San Francisco, and the California Exposition at San Diego, is available for the Pan-American Medical Congress.

The Palace Hotel will be headquarters.

The First Pan-American Medical Congress was most successfully held in the United States in 1893. Five intervening Congresses have been held in Latin American countries. It now devolves upon the medical profession of the United States to make this, the seventh, the most successful in the series.

The officers are: Charles A. L. Reed, President, Union Central Building, Cincinnati; Ramon Guiteras, Secretary General, 80 Madison Avenue, New York City; Harry M. Sherman, Chairman Committee of Arrangements, 350 Post Street, San Francisco; Philip Mills Jones, Special Committee on Hotels, 135 Stockton Street, San Francisco.

OFFICERS AND NON-COMMISSIONED OFFICERS, ORGANIZED MILITIA, ATTENDING CAMPS OF INSTRUCTION TO BE CONDUCTED DURING THE COMING SUMMER.

EASTERN DEPARTMENT.
Camp to be conducted at Tobyhanna, Pennsylvania, June 21-26, 1915.

State.	Officers.	Non-Com. Officers.
State.	Officers.	Non-Com. Officers.
Maine	9	2
New Hampshire	4	2
Vermont	4	4
Massachusetts	38	0
Rhode Island	15	2
Connecticut	18	0
New York	0	0
New Jersey	?	?
Delaware	0	0
Pennsylvaia	35	20
Virginia	?	?

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West Virginia	0	0
Maryland	13	12
District of Columbia	0	0
Total	126	42

Camp to be conducted at Fort Oglethorpe, Georgia, June 7-12, 1915.

Kentucky	12	0
Tennessee	12	0
Mississippi	4	4
Alabama	0	0
North Carolina	0	0
South Carolina	0	0
Georgia	0	0
Florida	8	4
Total	36	8

SOUTHERN DEPARTMENT.

Camp to be conducted at Fort Sam Houston, Texas, May 24-29, 1915.

Texas	0	0
New Mexico	0	0
Oklahoma	10	0
Arkansas	11	8
Louisiana	3	6
Total	24	16

CENTRAL DEPARTMENT.

Camp to be held at Sparta, Wisconsin, July 5-10, 1915.

Wisconsin	7	5
Iowa	10	8
North Dakota	0	0
Missouri	0	0
Minnesota	0	0
Illinois	10	0
Indiana	2	0
Ohio	0	0
Michigan	12	10
Total	41	23

Camp to be held at Fort D. A. Russell, Wyoming, May 31-June 5, 1915.

Idaho	2	0
Montana	2	0
Wyoming	4	4
Utah	2	3
Colorado	6	10
South Dakota	0	0
Nebraska	13	15
Kansas	2	2
Total	31	34

WESTERN DEPARTMENT.

Camp to be held at the Presidio of Monterey, California, June 7-12, 1915.

Oregon	?	?
California	18	25
Arizona	0	0
Washington	6	4
Total	24	29

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FIELD HOSPITALS AND AMBULANCE COMPANIES, ORGANIZED MILITIA, PARTICIPATING AT THE JOINT CAMPS OF INSTRUCTION TO BE HELD DURING THE COMING SUMMER.

EASTERN DEPARTMENT.

Camp to be conducted at Tobyhanna, Pennsylvania.

1st period.	Massachusetts	1 field hospital	1 ambulance company
July 5-13.	North Carolina	1 field hospital	1 ambulance company
2nd period.	Pennsylvania	1 field hospital	1 ambulance company
July 15-23.	Tennessee	1 field hospital	
3rd period.	Connecticut	1 field hospital	1 ambulance company
July 26-Aug. 4.	New Jersey	1 field hospital	1 ambulance company
4th period.	New York		1 ambulance company
Aug. 6-14.	District of Columbia..	1 field hospital	

CENTRAL DEPARTMENT.

Camp to be conducted at Sparta, Wisconsin.

1st period.	Ohio	3 field hospitals	2 ambulance companies
July 12-20.			
2nd period.	Wisconsin	1 field hospital	
July 22-30.	Indiana	1 field hospital	1 ambulance company
3rd period.	Kentucky	1 field hospital	
Aug. 2-10.	Missouri	1 field hospital	1 ambulance company
4th period.	Illinois	2 field hospitals	
Aug. 12-20.	Michigan		2 ambulance companies
5th period.	Iowa	1 field hospital	1 ambulance company
Aug. 23-31.	Nebraska	1 field hospital	

Joint camp to be conducted at Fort D. A. Russell, Wyoming.

May 31-June 8.	Colorado	1 field hospital	

SOUTHERN DEPARTMENT.

Joint camp to be conducted at Fort Sam Houston, Texas.

Period.	Tennessee		1 ambulance company
July 15-23.	Oklahoma	1 field hospital	1 ambulance company

WESTERN DEPARTMENT.

Joint camp to be held at Presidio of Monterey, California.
No Militia Organizations in this Department to attend.

Honors to Panama Canal Builders.—On March 4, in accordance with a bill passed in Congress extending thanks to the officers prominent in the building of the Panama Canal, the following honors were conferred for distinguished services: Col. Geo. W. Goethals, C. E., was made Major General; Col. Harry F. Hodges and Lt. Col. Wm. M. Sibert were made Brigadier Generals; Civil Engineer Harry H. Rousseau, U. S. N., was promoted to the rank of Rear Admiral and Brigadier General Wm. Crawford Gorgas, Surg. Gen. U. S. A., was made Surgeon General in the Medical Department. This action in regard to Surgeon General Gorgas is unprecedented in the history of the Medical Corps of the Army. The only approach to it having been the brevet rank of Major General given to Surg. Gen. Barnes at the close of the Civil War. The act further provides that the officer who may be advanced and appointed Major General in the Medical Department shall thereupon become the head of such department, and the operation of so much of Section 26 of the act of February 2, 1901, as limits the term of office of the head of the Medical Department, U. S. A., shall be suspended during the incumbency of the head of the department who may be appointed under this act. Whenever the head of the Medical Department appointed under this act shall become separated from the active list, by retirement or otherwise, the extra office or grade to which he shall have been so ad-

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vanced or appointed, shall cease and determine, and thereafter the rank of the head of the Medical Department, U. S. A., shall be that of a Brigadier General. Nothing in this act shall operate to interfere with or retard the promotion to which any officer would be entitled under existing law. And provided, further, that the officers advanced to higher grades under this act shall be junior to the officers who now rank them under existing law when these officers have reached the same grade.

Section 6. That at any time after the passage of this act any officer of the Army or Navy to be benefited by the provisions of this act may, on his own application, be retired by the President at seventy-five per centum of the pay of the rank upon which he is retired.

The Ambulance Construction Commission.—In the March issue of THE MILITARY SURGEON, brief mention was made of the philanthropic work of the Wellcome Bureau of Scientific Research in London, in offering prizes for a complete design of ambulance body. The revised pamphlet just issued details the stipulations under which these prizes are offered. They are as follows:

Conditions

(A) *Relating to construction.*

(1) The body must carry, in comfort and safety, four wounded lying on stretchers of *British Army Regulation Pattern,** or eight wounded sitting, or two lying and four sitting, in addition to the driver and orderly attendant.

(2) The patients must be sheltered from weather and sun, with due regard to ventilation.

The driver and orderly must be provided with adequate shelter.

(3) The vehicle must be capable of being loaded from the ground level by four or fewer bearers.

(4) Every patient must be accessible for attendance from one side without being shifted from his position.

(5) There must be a vertical space of not less than two feet between the lower and upper tiers of patients.

(6) There must be sufficient windows to ensure ample light by day, and means of lighting the interior by night.

(7) There must be means for the orderly, on the box or elsewhere, to see every patient during running.

(8) There must be means of carrying the arms and equipment of the patients, some dressings, water, and small quantities of hot liquid in the vehicle.

(9) A vertical line through the center of gravity of the body must fall between the axles, whether the body is laden or empty.

The center of gravity of the body must be kept as low as possible.

(10) The body must be kept as light as possible compatible with adequate strength.

(11) The materials of construction should be as non-inflammable as practicable. Competitors may be called upon to submit samples of material of construction.

(12) The body must be of such a design that it shall fit a chassis, the essential dimensions of which are shown in the accompanying drawing.

* Dimensions: Canvas, 6 ft.; poles, 7 ft. 9 in.; width, 1 ft. 11 in.; height, 6 in.; weight, 30 lbs.

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(13) In making the award, the cost of construction of the body will be taken into consideration.

(B) Any number of different designs may be submitted by any one competitor.

(C) Designs may be submitted on any date up to and including June 30, 1915. No designs received after this date will be considered.

(D) The Commission, in order to form an opinion of the merits of the several designs sent in, may apply any test it thinks fit, and may cause bodies to be built to the designs of competitors, and may try these in actual practice. The drawings must be made in such a way that the body can be built from them.

SAFETY OF PLANS AND DESIGNS

Competitors should register the packages containing designs submitted. A letter of acknowledgment will be sent on receipt of each competing design. If this letter is not received after the lapse of a reasonable time, competitors should communicate with the Secretary.

ULTIMATE OBJECT OF THE COMPETITION

The object of the Commission is to improve the existing types of ambulance bodies, and to produce, if possible, a standard pattern body of perfect design which shall fit standard chassis. Apart from the prizes, there will be no payment made for designs. The Commission may, if it approve of the latter, publish them in some form or other, provided there is no objection on the part of the designers. They can then be used in the cause of humanity. It is Mr. Wellcome's intention, with the consent of the designers, eventually to publish, in a suitable and illustrated form, under the auspices of the Wellcome Bureau of Scientific Research, such material and information as the Commission may deem worthy of being preserved as a permanent record.

Hints to Competitors

The following suggestions, based upon an enquiry into the working of field motor-ambulances at the front, may prove useful to competitors:—

(1) Any mechanism or device introduced into the body must be (*a*) easy to work, (*b*) simple in construction, (*c*) so made that it will not get out of order, rust or jam.

Complaints were made that some devices, apparently ingenious, were in practice tiresome, cumbersome and time-wasting. Others led to jamming of the stretcher.

In this connection it should be noted that the best type of British Army stretcher slides on runners, not on wheels. Where grooves are used for taking these runners, what is called "stretcher-spreading," or "stretcher-splaying" may lead to trouble, owing to the stretcher-runner getting jammed in the groove.

(2) Lateral oscillation, especially for the upper tiers of stretchers, must be avoided.

(3) The protection and comfort of the driver (and orderly) are points requiring very careful attention. Apparently satisfactory devices for the protection of the driver were found to act as wind-shafts which drove the air over his head, along under the overhead awning and down the back of his neck.

(4) The comfort of sitting patients is essential.

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In some types of ambulance-body the seats are too low, or there is not enough room for the legs to be stretched, or the seat is too broad, or the structure of the body at the back of the patient is such as to cause acute discomfort, or there is insufficient support for the back.

(5) Any satisfactory, inexpensive method of heating the interior of the body will be taken into consideration when the final awards are made.

(6) Once the stretchers are in position in the ambulance they must be kept rigid. If straps are used for this purpose, rivets in the straps must on no account be employed, owing to their liability to perish.

(7) No ambulance-body can be considered satisfactory which is not readily convertible for carrying stretcher cases or sitting cases.

(8) The relation of the carrying capacity of a body to the strength of the chassis which bears it is of the greatest importance. Overweighting damages the chassis, and consequently the whole ambulance becomes useless. In practice it has been found that unauthorized persons will ride on any part of the outside of an ambulance on which they can get a footing. The body should therefore be so designed as to render impossible such overweighting by unauthorized persons. Intimately associated with this is the matter of overhang. [*See also the next suggestion.*]

(9) The back step should run the whole breadth of the body, and it should be possible to fold it away so that it cannot be used as a footing or seat by any unauthorized person.

(10) The material used for the covering of the body should be (1) light, (2) waterproof, (3) strong, (4) easy to replace, (5) easy to wash, clean and dry quickly.

Some materials used have been found to become soaked and to dry slowly. Others ceased to be waterproof where the red cross was painted.

(11) Access to the patient means access to any part of the patient, not merely to his head or feet.

On a forty-mile convoy journey it may be necessary to dress again the wounds of stretcher cases, or a wounded man may have to be held down.

(12) Ventilation, especially in warm weather, is essential. Equally important is the avoidance of dust and draughts.

(13) The question of some mechanical device, whereby stretcher-bases, especially those for upper stretchers, can be loaded *outside* the "body" at a convenient level and pushed back or levered into position, seems worthy of consideration.

(14) Provision must be made for the protection of tail-lamps.

(15) It is possible that a scheme might be devised whereby the position of a locker in the interior of the body, without interfering with the arrangements for stretcher cases, would occupy space in such a manner as to prevent over-crowding by sitting patients. [*See above,* No. 7.]

(16) It must not be forgotten that emergency stores of carbide and petrol, together with two days' rations for personnel (*i. e.,* driver and orderly), must be carried. It has been found unnecessary in practice to carry special supplies of water for the wounded in each ambulance.

(17) Good ideas for shaded headlights, and improvements in motor horns are worhy of consideration.

AMBULANCE CONSTRUCTION COMMISSION
10 Henrietta Street, Cavendish Square, London, W., England

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The Work of the Red Cross.—The American Red Cross has issued a brief summary of the work which it has accomplished from August 1, 1914, to April 8, 1915, in the relief of sick and wounded in war. On this summary is based an appeal for further generous contributions for the maintenance of its humanitarian service. Since the outbreak of the war 63 surgeons, 217 nurses and a sanitary commission of 12 have been sent to Europe, a total personnel of 292. From this personnel there have been furnished two English units for the American Women's Hospital at Paignton, England, two French units for the hospital at Pau, and one French unit assisting at the Alliance Hospital at Yvetot; two Russian units for the hospital at Kief; two German units for hospitals at Gleichwitz and Kossell; two Austro-Hungarian units for hospitals at Vienna and Budapest; three Serbian units for hospitals in Belgrade, and two Belgian units working under the direction of Dr. DuPage of the Belgian Red Cross. On May 1 three more surgeons and eight nurses are to be dispatched for a field hospital in France under the British Red Cross, and four more nurses have been requested for the units in Germany. Of the six surgeons and 12 nurses of Serbian units Nos. 2 and 3, five surgeons and nine nurses have been ill with typhus fever. Two of the cases have terminated fatally, Drs. James F. Donnelly, New York City, and Ernest P. Magruder, Washington. Dr. Ryan and one or two of the nurses of Serbian unit No. 1 have also been ill with typhus. Mr. Ernest P. Bicknell, National Director of the American Red Cross, whose services have also been given to the Rockefeller Commission, after investigation of conditions in Serbia, has cabled that the typhus fever epidemic overshadows everything and that there is danger of epidemic cholera. On account of the menace of this situation to Serbia and the surrounding countries, the American Red Cross, at the suggestion and with the financial assistance of the Rockefeller Foundation, has sent a sanitary commission of experts to Europe to aid in the control of these diseased conditions. This commission, which is under the directorship of Dr. Richard P. Strong, has been accepted by the Serbian government, and full co-operation has been arranged between it and like commissions sent by Great Britain and France. The list of supplies purchased is Gargantuan. Cotton by the hundreds of thousands of pounds, gauze and bandages by millions of yards, chloroform and ether by tons, disinfectants by shiploads, and garments for thousands upon thousands of destitute women and children, wounded and sick make up only a part of the practical expression of the sympathy of the American people for the war stricken.

Summer Graduate Course at Stanford.—The trustees and medical faculty of Stanford University announce a second annual summer graduate medical course from July 6 to August 14. The classes will be given in San Francisco in the Medical School Building and in the Lane, San Francisco and Isolation hospitals. The Lane Medical Library will be open to all members of the summer school, and during the session a special series of clinics will be given by the senior members of the medical faculty. As many courses as may be desired may be taken. The fees for the individual courses range from $10 to $35 with a maximum fee of $150. The courses of instruction include in the medical group: clinical medicine, clinical bacteriology, clinical pathology, special work on diabetes and gout, actinography, clinical neurology, dermatology and

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syphilis, pediatrics, serology and cardiac arrhythmias; while the surgical group includes courses in clinical surgery, operative surgery on cadaver, orthopedic surgery, clinical ophthalmology, the eye and general medicine, otology and laryngology and genito-urinary surgery. There are also to be classes in obstetrics, gynecology, cystoscopy, blood-vessel surgery, anesthesia and pathology.

WAR NOTES

Britain Needs More Medical Men for its Army.—Director General Alfred Keogh, Army Medical Services, under date of March 10 writes to the editors of the medical journals of England explaining the position of the government with regard to the employment of medical men for the Army: "The need of medical men for home and foreign service is acute. Every qualified man who is physically fit and willing to serve is wanted. There is special need of general practitioners, of expert surgeons, ophthalmologists, radiographers, et cetera. Suitable men will be given immediate employment. Men of more than forty years of age are not sent over seas but are taken on for home service. While the government does not wish to denude the country of civil practitioners, every man who can arrange that his work be done at home, should come forward, if an adequate supply of medical attendants for the armies in the field is to be maintained. In this really national emergency the government hopes that the medical profession, which has already done so much, will assist the responsible authorities."

Aid to the Belgian Red Cross.—On the American line steamer *St. Louis* six American Red Cross surgeons and twenty-four enrolled American Red Cross trained nurses left New York April 18 for La Panne, Belgium, to be attached to the Belgian Red Cross for six months service under Dr. DePage, who is directing Red Cross work among the Belgian soldiers at the front. These surgeons and nurses compose two complete hospital units. They will be stationed in Hospital l'Ocean in La Panne.

The surgeons are: Director, Dr. Albert Rotild Goodman, New York City, formerly chief surgeon of the National Railways of Mexico, and for a time the representative of the American Red Cross at Vera Cruz; first assistant, Dr. William H. Morriss of Baltimore; second assistant, Dr. John D. Spelman, M. C., Ohio N. G., of Cincinnati; director, Dr. Robert W. Hinds of Buffalo, who has had previous service in the American Red Cross since the European war broke at the American Women's War Relief Hospital at Paignton, England; first assistant, Dr. William T. Fitzsimmons, Kansas City, also formerly attached to the American Red Cross contingent in Paignton; second assistant, Dr. Earl V. Morrow of Portland, Ore. Another American Red Cross surgeon, Dr. James E. Daniel of Greenville, S. C., sailed on the *St. Louis* for England, where he will be second assistant surgeon in the Paignton Hospital.

Hospital Train for France.—The Princess Christian train, named in honor of Princess Christian, who raised the necessary funds, is now ready to be shipped to France. The train consists of twelve coaches and two break vans, capable of carrying 400 patients, the requirements of the War Office. The first coach contains an office for the quartermaster sergeant and a ward for thirty patients; the second and third coaches have each 36 beds with a lavatory in the center; the fourth coach has beds for 12

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orderlies, a kitchen and linen storeroom; the fifth coach affords a sleeper for nurses containing rooms for nurses and doctors and an office and sleeping-room for the principal medical officer; the sixth and seventh coaches contain each 36 beds; the eighth has beds for twelve orderlies and a second kitchen and the four remaining coaches are equipped for 50 patients each who are able to sit up. The train is so equipped that it may, if necessary, be employed as a stationary hospital on wheels.—*Times*, Weekly Edition, April 9.

Tribute to Royal Army Medical Corps.—In a recent dispatch, Field Marshall Sir John French, pays the following tribute to the work accomplished by the Royal Army Medical Corps: "Since the commencement of hostilities the work of the Royal Army Medical Corps has been carried out with untiring zeal, skill and devotion. Whether at the front under conditions such as obtained during the fighting on the Aisne, when casualties were heavy and accommodation for their reception had to be improvised, or on the line of communications, where an average of some 11,000 patients have been daily under treatment, the organization of the medical services has always been equal to the demands made upon it. The careful system of sanitation introduced into the Army has, with the assistance of other measures, kept the troops free from any epidemic, in support of which it is to be noticed that since the commencement of the war some 500 cases only of enteric have occurred. The organization for the first time in war of motor ambulance convoys is due to the initiative and organizing powers of Surgeon General T. J. O'Donnell, D. S. O., ably assisted by Major P. Evans, Royal Army Medical Corps. Two of these convoys, composed entirely of Red Cross Society personnel, have done excellent work under the superintendence of Regular Medical Officers. Twelve hospital trains ply between the front and the various bases. I have visited several of the trains when halted in stations, and have found them conducted with great comfort and efficiency. During the more recent phase of the campaign the creation of rest depots at the front has materially reduced the wastage of men to the line of communications. Since the latter part of October, 1914, the whole of the medical arrangements have been in the hands of Surgeon General Sir A. T. Sloggett. C. M. G., K. H. S., under whom Surgeon General T. P. Woodhouse and Surgeon General T. J. O'Donnell have been responsible for the organization on the line of communications and at the front, respectively."

Montenegrin Government Appeals for Aid.—An appeal to the American Red Cross from the Montenegrin Government, to aid in coping with a typhus epidemic in that country, has just been transmitted by the Department of State. The State Department's communication says in part:

"The Department has just received a telegram of March 31 from the American Minister at Athens, Greece, reporting that he is informed by telegraph by the Montenegrin Government that there is much typhus in that country, a great dearth of doctors, medicines and disinfectants, and that the Government earnestly begs the American Red Cross to send a mission with adequate supplies to Cettinge."

Nebraska Contributes to the American Red Cross.—Among larger contributions to the European war relief fund of the American Red Cross just received is a check for $1,135 from the Temporary Panama-Pacific

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Exposition Building Commission of Nebraska. It came through Mr. H. H. Wilson of Lincoln, Neb., Treasurer of the Nebraska State Board of the American Red Cross. The plans to erect a Nebraska Building at the great Pacific Coast fair were abandoned recently and the Commission decided to devote all the money in their treasury to the European relief work.

Hungarian Returns Thanks.—From Andreas Csekonics, President of the Hungarian Red Cross, the American Red Cross has received official acknowledgment of the receipt of and warm thanks for a recent contribution of $5,000, which has been applied to the needs of the American Red Cross Hospital in Buda-Pest. The note from Count Csekonics was conveyed through Ambassador Penfield.

Red Cross Work in Europe.—After having been an eyewitness of the operation of the American Red Cross and its more than two hundred skilled American surgeons and carefully trained American nurses in Europe, John Callan O'Laughlin of the Chicago *Herald,* in the *American Red Cross Magazine* for March, says:

"It is to me, and must be to every American, a matter of satisfaction that the American Red Cross units have established for themselves a high position in each of the belligerent countries. They have become centers from which radiate good will and friendship. The wounded and the diseased who have been cured at these institutions have gone forth to serve as missionaries of good relations between their own countries and the United States. There is not a man cared for in one of the American Red Cross hospitals who has failed to testify to the excellent treatment he received, the kindliness of the physicians and the nurses, and the skill they displayed in attending to his needs.

"The wounded when first brought to the hospital are taken to a ground floor room, where their heads are shaved in order to get rid of the vermin, which is one of the curses of life in the trenches. Then they are placed in hot baths, the first most of them have had in weeks and months. When thoroughly cleaned they are carried to a ward where they are examined, or directly to the operating table, in case their wounds call for the immediate use of the knife.

"I followed one man from the time of his entrance until he was safely tucked in bed. I shall never forget the miserable object slumping in the barber's chair and the same object transformed into a man with a smiling face when he lay comfortably upon the cot assigned to him. . . .

"I feel from what I have seen of the American Red Cross work in Europe that every American and especially those who contributed to the American Red Cross fund, can point with real pride to what has been and what is being accomplished. Thousands of young fellows who have been wounded on the battlefield, or who have suffered from disease, are today well and strong as a result of the treatment they received from our units.

"The American Red Cross has a high reputation throughout Europe for humanity, for efficiency, and for neutrality. To my mind the relief work being done by the United States should be placed entirely in charge of this organization. Thereby better results could be obtained than is possible from the individual and more or less haphazard methods which are being pursued"

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Obituaries

Colonel Oliver Cotton Smith, formerly Surgeon General, Conn. N. G., and an active member of the Association, which he joined in 1905, died at his home in Hartford, March 20, 1915, from carcinoma, aged 55.

Colonel Smith was born in Hartford, November 29, 1859, the son of William Brown and Virginia T. Smith. After a course of instruction in the public and high schools of Hartford and a course in a business college, he entered Long Island College Hospital, Brooklyn, from which he received the degree of M. D. in 1883. His hospital service included the positions of visiting surgeon to St. Francis Hospital, Hartford; assistant visiting physician to the Hartford Hospital and consulting surgeon to the Litchfield County Hospital. Among his contributions to medical and surgical literature may be noted articles on "Early Correction of Congenital Deformities," "Smallpox and Vaccination," "Three Cases of Pulmonary Abscess with Operation," "Treatment of Prostatic Hypertrophy," and "Dangers of Delay in Acute Abdominal Lesions."

Colonel Smith was a fellow of the American Medical Association and the American Urological Association, a member of the Connecticut Medical Society, Hartford County Medical Society, Hartford City Medical Society and chairman of the Surgical Section of the latter organization, and a member of the Alumni Association of Long Island College Hospital.

He entered the military service January 1, 1905, as Surgeon General of Connecticut. He was well known as a surgeon, became a Fellow of the American College of Surgeons, and in June last was given the honorary degree of Master of Arts by Yale University. In 1886 he was married to Clara Belle Waterman, daughter of his preceptor.

After several years of suffering from malignant disease for which operations were performed without relief, he finally succumbed.

William Hunt Hall, M. D., Surgeon of the 36th New York Volunteer Infantry throughout the Civil War, and later Assistant Surgeon of the 13th Infantry, N. Y. N. G. S., died suddenly at his home in Camden, Me., February 2, 1915, aged 76.

Dr. Hall was born in New York City, March 12, 1838; received his preliminary education in the Brooklyn City Academy and his medical course in the Medical Department of the University of the City of New York, from which he was graduated in 1859. After two years of study in France, he entered the volunteer service as Assistant Surgeon and served throughout the Civil War, near the close of which he was promoted to Surgeon. After the war he continued in the military service as Assistant Surgeon of the old 13th New York Regiment.

He then located at Rutherford, N. J., where he was physician to the late President Cleveland. From there he moved to Saratoga Springs, N. Y., where he was a member of the local United States Pension Board. He

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had also been medical director of the Grand Army of the Republic. About three years ago he left Saratoga and purchased a home in Camden, Me., where with his daughter he lived until his death.

Capt. James Eugene McGourty, M. C., Mass. V. M., formerly an active member of the Association, which he joined in 1902, died in Flower Hospital, New York City, March 28, 1915, from pneumonia, aged 42.

Captain McGourty was born in Worcester, Mass., February 5, 1873, the son of Owen and Anne Heron McGourty. After going through High School in Worcester, he entered Harvard Medical School, from which he received his degree of M. D., June 24, 1896. He located in Worcester, Mass., where he practiced until 1910. During this time he entered the military service as Lieutenant and Assistant Surgeon of the Ninth Infantry, Mass. N. G., and was promoted to Captain and Assistant Surgeon

Capt. James Eugene McGourty, M. C., Mass. V. M.

in 1899. In 1911 he went to New York and entered the service of the Hamburg-American line as Surgeon on the boats between New York and Hamburg. At the outbreak of the war in Europe he was transferred to the New York-Puerto Rico service, in which he remained until his last illness.

Rear Admiral Michael Coyle Drennan, Medical Director, U. S. N., retired, died at his home in Easton, Pennsylvania, March 23, from heart disease, aged 76.

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Admiral Drennan was born in Pennsylvania, October 10, 1838; took his medical course in the Medical Department of the University of Pennsylvania, Philadelphia, from which he was graduated in 1863; he entered the navy on April 15 of that year and served during the remainder of the Civil War as an acting assistant surgeon on duty with the blockading squadron. During his service in the navy he had fifteen years' and eight months' sea service on the *Macedonia, Nantasket, Pawnee, Ashuelot, Kearsage, New Hampshire,* and *Vermont* on the Atlantic, Asiatic and European stations; and also fourteen years' and three months' of shore or other duty, including services at the naval hospitals of Norfolk, Va., Yokohama, Japan, New London, Conn., and New York.

He reached the grade of medical director April 16, 1899, and was retired on October 24, 1899 for incapacity resulting from an incident of service. On account of Civil War service he was given on retirement the rank of next higher grade to that which he held on active list.

Lieutenant Marshall Langton Price, M. R. C., U. S. A., died at sea while returning from England on board the American Line steamer *St. Paul,* April 16, 1915, aged 36.

Dr. Price was born in Port Gaston, Cal., April 28, 1878, the son of Major Curtis Ethelbert and Frances Shaw Price. His early education was by private tutors and at the Staten Island Academy, New York, and his medical course was taken at the University of Maryland, Baltimore, from which he received the degree of M. D. in 1902. After service as intern in the University Hospital, Baltimore, he was medical officer of the Tuberculosis Commission of Maryland from 1903 to 1905; secretary of the Maryland State Board of Health from 1907 to 1913, and a member of the Maryland-District of Columbia Sewerage Commission in 1912. He was the originator of the first law for the state control of tuberculosis, a law which is now in effect in many states of the Union and is commonly known as the "Maryland System."

Dr. Price was a Fellow of the American Medical Association, secretary in 1910 and vice-chairman in 1911 of the Section on Preventive Medicine and Public Health; a member of the American Public Health Association, American Statisticians' Association, American Association for the Study and Prevention of Infant Mortality, National Association for Study and Prevention of Tuberculosis, and was a delegate to the Sixth International Congress of Tuberculosis and the Fifteenth International Congress on Hygiene and Demography. He was a frequent contributor to the literature on public health.

On June 14, 1907, Dr. Price was married to Miss Henrietta Cowman George of Baltimore; on April 26, 1911, he was commissioned First Lieutenant, Medical Reserve Corps, U. S. Army. In 1914, on account of ill health, Dr. Price moved from Baltimore to Boise, Idaho. He had recently been abroad and on his return voyage died, presumably from gastritis, and was buried at sea April 17.

In the changes of stations of the Medical Officers of the Army for the week ending April 17 appears the notice of the honorable discharge of Lieutenant Price from the service of the United States. His discharge from all earthy service occurred April 16.

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Original Articles

Authors alone are responsible for the opinions expressed in their contributions

A Question of Synonomy

BY DR. C. S. LUDLOW.*

FOR some time an Anopheline found in the Eastern tropics has been accumulating names in a most unfortunate way, and as the mosquito is proven a very active carrier of malaria, and I myself am partly to blame for this multiplication of names, it seems fit I should try to untangle the synonomy.

When the study of Philippine mosquitoes was in its infancy there was sent in to me an Anopheline which, according to the only authority available at the time,[1] seemed to be *Anopheles funestus* Giles. This Anopheline is common in the Islands and was early seen to be so usually collected in connection with the report of malaria that in 1908 I noted[2] "is taken always when malaria is present or prevalent," and this was so conspicuous that I stated "one specimen in a collection is enough to lead to a suspicion that malaria is present, and even a small number of them is usually accompanied or immediately followed by new cases, the number (of cases) depending largely on the prophylactic control of the station."

Nothing occurred to suggest to me that an error had been made in referring this species to *A. funestus* until the spring of 1912, when, in discussing some Philippine mosquitoes with Dr. Malcolm Watson, Chief Medical Officer, Estate Hospital Association, Klang, F. M. S., who was in Washington at that

* Dr. C. S. Ludlow was formerly Anatomist of the Army Medical Museum and is a distinguished authority on the disease-bearing mosquito.—THE EDITOR.

[1] Giles, G. M., Gnats or Mosquitoes. First Edition.

[2] Ludlow, C. S., Mosquitoes of the Philippine Islands, the distribution of certain species, and their occurrence in relation to certain diseases. 1908.

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time, he called my attention to the fact that the dark species under consideration had a light ventral apical portion on the proboscis, and it seemed possible that it was an undescribed species. I gave Dr. Watson specimens of various Philippine mosquitoes, which he took to Mr. F. W. Edwards (British Museum) for confirmation of my naming, and at once wrote me that whath I had called *funesta* Giles was really *christophersi* Theob. In the meantime I published a description of the dark specimens as *Myzomyia flavirostris*.

Mr. Edwards also kindly wrote me in regard to the matter, saying there could be no doubt as to the naming of the species, especially as Mr. Theobald's types in the British Museum were "fortunately in good condition. The type of *christophersi* has two broad apical bands like your *funesta*. On the other hand both *funesta* Giles and *listoni* Liston have female palpi with three narrow bands," and in a later letter writing in regard to specimens I had sent him, Mr. Edwards writes: *"B. M. Funesta* Giles" and *"M. flavirostris Ludl."* both, as you suggest = *"christophersi."*

In preparing the MS. of "Bulletin No. 4, Surgeon General's Office," in 1913, as this species had heretofore been reported to the Medical Corps, U. S. Army, as *"M. funesta,"* it seemed wise to retain the name and Giles' description and add a footnote explaining the error which had occurred, and giving the correct name and synonomy, which, with the description of *flavirostris* immediately following, it was believed would make the matter quite clear.

It was therefore a surprise to find Mr. Banks had re-described this species as *A. febrifer*[3] and that Messrs. Walker and Barber, in their article, "Malaria in the Philippines," had referred to its connection with malaria as if that were quite unknown.[4] The footnote at the end of this article is also definitely misleading as I did not suggest that *christophersi* = *listoni*, but showed that whatever else the synonomy might be, it did not include *listoni*.

Dr. Marshal A. Barber sent me specimens of this mosquito for determination which reached me in beautiful condition, and there can be no doubt that it is the one I had wrongly referred to as *"funesta,"* that is, it is unquestionably *christophersi*.

[3] Banks, G. S., A New Philippine Malaria Mosquito. *The Phil. Journ. Sc.* Vol. IX. Sec. D. No. 4. August, 1914.

[4] Walker, E L., and Barber, M. A., Malaria in the Philippines. *The Phil. Journ. Sc.* Vol. IX. Sec. B. No. 5. September, 1914.

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The synonomy of this species as given by Dr. Edwards, and added to by myself and Mr. Banks, is therefore—

Anopheles (*Myzomyia*) *christophersi* Theobald. =
alboapicalis Theobald.
Mangyana Banks.
funesta Ludlow non Giles.
flavirostris Ludlow.
febrifer Banks.

The re-naming of this species by Banks is the more interesting because of the extreme amount of malaria among the Mangyans and that *Myzomyia mangyana* Banks was described in connection with a recognition of that condition.

In regard to *Anopheles rossi* Giles. As used by Banks it includes at least three forms—

Myzomyia ludlowi Theob.
Myzomyia indefinata Ludl.
Myzomyia parangensis Ludl.

and is therefore nearly as confusing in the reduction of names as is the multiplication of names in the species previously considered.

It is easy to collect data concerning the relationship of these species, which have probably been more or less mis-comprehended.

Mr. Edwards writes me in regard to specimens I had sent him marked *"M. rossii or indefinata"*: "I think I mentioned to you my conclusions on this subject, but I am not sure. They are that *indefinata* is a variety of *rossi* representing it in the Philippines and Malaya, the true *rossi* not occurring further east than India and Ceylon. These specimens, like all I have seen from the Philippines, are *indefinata.*"

Christophers[5] says that though *Nsm. ludlowi* rather closely resembles *Nsm. rossi,* the "eggs of the two species are quite distinct," and Strickland,[6] while not agreeing with Christophers on this point, after having given the differences in the two larvæ, says: "The larva of *ludlowi* is therefore quite distinct from that of *rossi,*" and in a footnote adds: "As a certain amount of confirmation, we may note that if either *ludlowi* or *rossi* had hatched out of one of our breeding bottles, on examining

[5] Christophers, S. R., Malaria in the Andamans. Sci. Mem. by Off. of Med. and San. Depts. Govt. of India. (New Series.) No. 56.
[6] Strickland, C., The Comparative Morphology of the Anophelines *Nyssomyzomyia ludlowi* Theob. and *Nyssomyzomyia rossi* Giles. Bull. Ento. Research. Vol. V. Part 4. March, 1915.

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the larvæ remaining in the bottles we found in *every* case, although we need not have expected such favorable evidence, that they were of the type which we now ascribe to the respective species.

The description of *Myzomyia parangensis* has been comparatively lately published, but specimens were sent to Edwards for comparison before its publication, and his verdict was: "This is quite unlike any anopheline I have seen before. I suppose it comes nearest to *ludlowi*."

The status of these species seems to be that the anophelines taken in the Philippines, which closely resemble *rossi,* are *indefinata,* and that *ludlowi* and *parangensis* are established species.

When insects are connected with the transmission of disease it is doubly important that the nomenclature should be as unclouded as possible, and it is hoped the above points may clear some of the confusion which has existed concerning these species.

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Suppurative Otitis Media, and its Complications—From a Military Standpoint

By G. B. Trible, Past Assistant Surgeon, U. S. Navy.

THE chief direct causes of the suppurative diseases of the middle ear are the acute exanthemata, tonsillitis, acute pharyngitis and various pyogenic infections of the nose and nasopharynx.

Among the less frequent direct causes are infections incurred by the swallowing of infected water while diving or swimming and its entrance into the eustachian tube; also rupture of the membrana tympani during gun fire, rupture during diving from the increased pressure, etc., and subsequent infection.

Indirectly, any abnormality of the upper respiratory passages, chronic catarrh of the nose or nasopharynx, chronic pharyngitis, tonsillitis, syphilitic infection of the mucous membrane of the throat, eustachian tube and the middle ear spaces as a secondary manifestation, may cause suppurative conditions.

A catarrhal middle ear condition with the exudation of serum may be changed to suppurative otitis media by infection of the exudate.

From the crowding incident to military existence in barracks, or on board ship, many of the direct factors productive of suppurative middle ear disease are much aggravated, and opportunities for infection from the indirect causes, such as diving and swimming, are of course greatly increased.

Bacteriologically the streptococcus, the staphylococcus, influenza bacillus, Friedlander's bacillus, the pneumococcus or one of its substrains, the streptococcus mucosus, are most commonly found. Infection from the pneumococcus or the streptococcus mucosus are extremely virulent, and are often quickly followed by mastoiditis, sinus thrombosis or cerebral complications.

Less frequently the diphtheria and the pseudodiphtheria bacillus and occasionally other organisms are found. Staphylococci are usually evidence of secondary infection.

The Diagnosis.

The diagnosis of acute suppurative middle ear disease should not, under ordinary conditions, be attended with any difficulty. The localized pain, often edema and swelling of the pre-auricu-

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lar and post-auricular tissue, the discoloration of the drum, the history of acute exanthemata, or the presence of an inflammation of the throat or nose, all point to the diagnosis. There is usually a rise of temperature of from one to four degrees F.

There is frequently a frank chill and in the early stage a leucocytosis, although the leucocytosis may be due to coincident throat infection. The glandular involvement may be pronounced. In some instances a view of the drum is obscured by swelling of the external auditory canal. These cases present difficulties of drainage; a few small incisions parallel with the long axis of the canal will reduce the swelling sufficiently to enable a view of the drum to be obtained, and to allow for subsequent discharge of pus.

Complications of an acute suppurative middle ear disease are probably always present at some time or another.

The middle ear spaces are so small that it is hard to see how a suppurative inflammation can be confined throughout to a limited area. The complications are of surgical importance only when drainage is not freely established, or when there is necrosis of the bone.

The treatment of acute suppurative otitis media is free incision of the drum, as a rule in the posterior and inferior segment, from anatomical reasons.

A small incision or paracentesis is not sufficient. If there is pronounced bulging, the incision can well be made at that point.

With this treatment in the beginning of an infection, combined with free cleansing of the throat and nose, and thorough removal of the discharge and secretions, healing is usually prompt and uninterrupted. Often after an incision there will be a discharge of blood only for an hour or more before the true pus is evacuated.

In pneumococcus infections, in measles or scarlatina, or in the rarer cryptic infections, there may be directly a mastoiditis or even an acute suppurative labyrinthitis without the usual suppurative middle ear involvement.

It is of great importance from the standpoint of the service to treat the acute cases efficiently, the number of sick days are lessened, and the man is retained in the service, a condition not always brought about in dealing with chronic suppurative middle ear disease.

In the chronic cases there is much more difficulty in a large percentage of cases. A persistent discharge of more than three

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months' standing will not yield to other than a meato-mastoid or a radical mastoid operation.

The site of perforation does not give a very true index to the location of the suppuration; at least this cannot be relied upon.

If the perforation is small, and there is evidently a blocking of the discharge, or if the perforation is high, it should be enlarged so that free drainage can be established.

The use of vaccines have not proven as satisfactory as was hoped. An apparent recovery is often followed by a relapse. The discharge will occasionally cease spontaneously for a time without any treatment. Thorough cleansing with peroxide of hydrogen (diluted one-half), followed by the instillation of alcohol, is one of the most efficient methods of treatment. The fear of spreading the infection is over-estimated; as a matter of fact the infection has already spread, the peroxide breaks up into oxygen and water, the oxygen has a mild antiseptic action and goes to all recesses, while the water simply softens and dilutes the pus. The decomposition of the peroxide breaks up the thickened secretion and allows it to escape. The remaining water then dilutes the alcohol.

After rupture of the membrana tympani from concussion due to gun fire, or from extremely high atmospheric pressure, diving, the best method of treatment is to dry the ear with sterile cotton swabs, or cotton tipped applicators, and to leave a sterile cotton plug in the external auditory canal.

The throat should be cleansed by gargles or applications of mild antiseptics. Urotropin internally in these cases and in all suppurative conditions has a value. The rupture, as a rule, heals rapidly, with no complications.

Mastoiditis, as before mentioned, probably exists in a vast majority of suppurative middle ear cases. The severity of the case and the amount of destruction cannot always be judged by the severity of the external symptoms. Numerous cases showing only slight external symptoms, such as pain and tenderness on pressure, edema or swelling over the mastoid, have, when operated upon, proved to be mere shells of unaffected bone covering a pulp of broken down cells, while other cases which have given violent external symptoms have shown upon operation but a few broken down cells. The white cell and differential count are of assistance, though not absolute, since the tonsillitis or other factors in the case may influence it very markedly. A white count of from 30-40,000 with around 90 per cent of polys. indicates sinus or cerebral involvement. In

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cases of suspected meningitis or cerebral involvement spinal puncture should be made.

Mastoid Operations.

There should be made a free incision parallel and about three-eighths to three-quarters of an inch posterior to the auricle; the primary incision should go directly to the bone in the middle portion, while not quite so deep superiorly and inferiorly. Superiorly one cuts the temporal muscle and causes more bleeding, and inferiorly the facial nerve may be injured. Rapidly raise the periosteum and push the auricle forward and elevate the cartilaginous canal from the bone. When all is clear and the bleeding points are crushed or tied off, with a large, flat chisel open the bone, cutting parallel to the plane of the bone. A mastoid with superficial air cells, the pneumatic type, is without danger, for the sinus is usually posteriorly and deep, while one showing the diploetic type of structure usually has the sinus superficial and near to the auditory canal. Exposing the sinus does not injure anything, and if it is exposed it has no serious consequences except to delay the operation by profuse bleeding.

A small pledget of gauze should be placed in the sinus, separating it from the bone and compressing it if possible.

When the cells in the mastoid process are cleaned out, the operation can be completed by opening the antrum, or if there is free drainage through the middle ear, and there exists a healthy wall of bone between the lower mastoid cells and the antrum, the antrum need not be opened at this operation. A previous radiograph will be of assistance in showing the extent of involvement and the size and location of the cells. There are frequently cells at the root of the zygoma which should be cleared out if infected.

Opening the antrum usually impairs the hearing slightly, while a simple mastoid has no effect on the hearing.

The location of the suprameatal spine and ridge is not necessary. The antrum can always be found by going parallel with the posterior superior wall of the bony canal. The insertion of a probe or a grooved director into the canal will give the line to follow.

The spine and triangles are not constant.

After opening the antrum and allowing drainage, thoroughly cleaning out pus and granulations, it can now be determined whether or not it is necessary to complete the exenteration and

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do either a radical or a conservative radical (Heath operation or Ballinger's modification).

The largest chisels practicable should be used, there is less danger, a large plane is exposed, work is quicker and cleaner. If the antrum is exposed and cleared out and it is wished to convert the operation into a radical, the easiest method is to clear away the superior wall, throwing open the attic, then rounding off the superior and posterior walls, finally coming down to the inferior wall with the remaining bridge covering the facial spur. This should be removed with extreme care, with clean cutting and not by fracturing, since a fracture may run into the facial canal.

Using the Stacke protector as protector and guide, the bridge can be brought down so that it appears only as a small rounded ridge, covering the facial nerve. There sometimes follows a temporary paresis (in some cases permanent paralysis) of the facial nerve, even when the nerve is not cut or the canal opened, due to either an exudative inflammation or to trauma from the operation, or unskillful use of the Stacke protector from pressure. Cases showing marked labyrinth symptoms usually clear up from the radical operation, even when there are fistulous openings into the labyrinth. If, however, there is a complete destruction of the labyrinth from suppuration and no remnant of labyrinth functions, it should be cleared out. Probably the earliest and most satisfactory method is that of Neuman, who exposed and cleared out the sinus and operated posteriorly. After a radical operation the hearing is so poor as to incapacitate a man for the service. Of course a case demanding such treatment is of necessity lost to the service anyway, and the operation can be only undertaken from a humanitarian standpoint.

If the Heath operation, in preference to the radical, is contemplated, care must be exercised not to injure the membrana tympani or the ossicles. It can be readily turned into the complete radical.

The great point with us should be to avoid as far as possible getting recruits of types which experience shows give a large percentage of ear troubles. Any sort of perforation or ear discharge should be a sufficient cause of rejection. Recruits with enlarged tonsils, adenoids, obstruction of respiration, such as deflected septum, hypertrophic rhinitis with enlarged turbinates (inferior usually) should be carefully gone over at the recruiting depots and these conditions corrected as far as possible.

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Nasal polypi as indicative of accessory sinus disease should be given careful attention.

By reduction in number of the types usually furnishing a large percentage of suppurative middle ear disease, this class of patients can be reduced to a minimum. The constant tendency of patients of the lymphoid diathesis to repeated colds, tonsillitis, influenza and other diseases of the upper respiratory tract of course gives this type of patients opportunity to incur suppurative processes of the middle ear more readily than those of better physique.

Those with deflected septa, hypertrophic rhinitis, or any obstruction to respiratory ventilation of the nasal passages, accessory sinuses and middle ear, are predisposed to catarrhal salpingitis and otitis media, and the mucous membrane is less resistent to infection.

Then there is the tendency to serous exudate in the catarrhal type of middle ear disease. The exudate becomes infected and the suppurative disease is engrafted upon the catarrhal.

It would seem that there is too great a tendency to blame ruptured membrana tympani from gun fire for all the ear diseases in the service. In questioning patients with suppurative otitis media, with history of ruptured drum, it is frequently found that the ear has discharged before. The trauma complained of had probably caused an exacerbation of a long standing condition. Or the examination may reveal an acute tonsillitis, or an acute rhinitis, the trauma, if any, being merely one of a number of causative agents.

By proper selection and treatment of recruits the percentage of those rendered unfit for the service from suppurative otitis media and its sequelæ, as well as the number of sick, with the loss of time and expense incident thereto, can be brought to a minimum.

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Operative Perforation of the Nasal Septum

By William R. Eastman, Major Medical Corps, U. S. Army.

THE *bête noire* of a nose and throat operator is a perforation of the nasal septum, and I have seen a man taking special work at one of the big New York clinics give up his operation because he had punctured the membrane on the far side.

On November 17, 1914, Sergeant H— of the Field Artillery came to the hospital with the statement that he had been unable to breathe through his left nostril for several years, and whenever he "caught cold" the right side closed up, compelling him to breathe entirely through his mouth. Examination showed a marked deviation of the nasal septum to the left, pressing upon the inferior turbinated body, causing a depression in, but not being adherent to, this body. Posteriorly the septum bulged to the right, especially in the region of the middle turbinate, with which it was in contact, and all the turbinates were turgescent.

After certain preliminary treatment, a submucous resection was undertaken. A vertical incision was made on the left side and the muco-perichondrium dissected well around and beyond the deviation, the incision was carried through the cartilage and the dissection progressed readily on the right side until the deepest part of the concavity of the deviation was reached. Here the muco-perichondrium was found to be so firmly adherent to the cartilage that it was impossible to dissect it free, and it was necessary to dissect completely around this area (about 1 cm. in diameter), and then cut through the membrane around the border, leaving a hole in the membrane. Dissection was then completed posteriorly and the cartilage, parts of the ethmoid plate and vomer and a bilateral ridge along the floor of the nose were removed.

The cartilage showed a cicatrix at the apex of the concavity, evidently the result of an old ulceration, involving the muco-perichondrium on the right side and part of the thickness of the cartilage, fortunately not penetrating to the other side. The weakening of the septum by this ulceration would account for the marked buckling at that point.

After bleeding had been checked, the left membrane was drawn forward, overlapping considerably the original incision, and the cavity securely packed, then the edges of the perforation on the other side were drawn together as much as possible and that side

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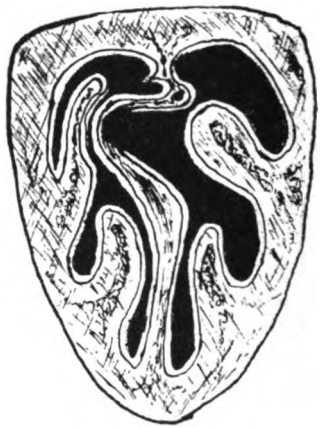
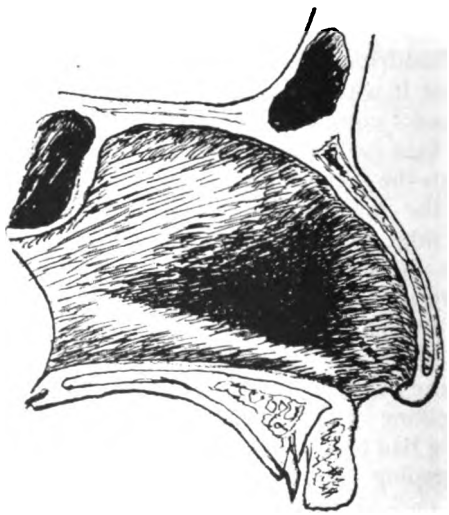
packed. The packing was removed on the third day and the result was apparently good. The man went back to his station on the Mexican border in about two weeks, and in a communication dated January 10, 1915, the surgeon, whom I had requested to examine the sergeant's nasal apparatus, stated that there was no perforation of the septum, the air passages were free, the area from which the cicatrix had been removed had filled in with epithelial tissue and the man considered himself quite cured.



Vertical Section. Showing Deviation of Septum.



Lateral View. Right Side of Nasal Septum.

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Rope in Bread in Field Bakery U. S. Army

(*From Field Laboratory, Field Hospital No. 5, Texas City, Texas.*)

By Guy L. Qualls, First Lieutenant, Medical Corps, U. S. Army.

INFECTION of bread by the potato bacillus (*Bacillus Mesentericus*), producing the condition commonly known as "rope," has been known for several years. An investigation of this condition was made by the Wisconsin Experimental Station in 1896. (No. 1.) The lack of general knowledge of the source of this infection and the practical means of prevention it is believed justify this report.

Ropy, slimy or sticky bread, or slimy cake, is caused by the potato bacillus; an organism widely distributed in nature, and it is introduced into the loaf by some of the ingredients used in making the dough.

Investigations made by the Wisconsin Experimental Station show that it is quite probable that the organism in the instance reported was introduced into the bread by a variety of ordinary compressed yeast. (No. 2.) The experiments also demonstrated that the ordinary baking temperature would not suffice to destroy the spores of this bacillus.

During July, 1914, the entire bread supply of that part of the Second Division, U. S. Army, stationed at Texas City, Texas, was infected. The bread after baking was stored in tents to cool and dry before distribution. For the first few hours there was little or no change in the loaf at ordinary temperatures, but after 24 hours, upon breaking the loaf an odor not unlike unripe cantaloupe was noticeable. A few hours later yellow or brown spots, with a soft, sticky center, began to appear. These soft spots spread rapidly, and within 36 to 48 hours, depending on the temperature, the entire central portion of the loaf became a semi-fluid, sticky mass, totally unfit for food, and could be pulled out in long strings or ropes. Smears made from these areas, when stained with methylene blue, showed free spores in large numbers, mingled with them a moderate number of large thick bacilli with rounded ends, both spores and bacilli being Gram positive.

At Texas City all bread was baked in field ovens (portable sheet iron boxes containing tiers of pans and designed for con-

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tinuous baking), the temperature reaching 500 degrees Fahr. during baking. Experiments proved that while the air in the oven attained this temperature, the inside of the loaf seldom exceeded 210 degrees Fahr.

The cultural characteristics of the organism found in this ropy material are as follows: Agar plate: growth rapid, colonies dull, irregular branching, elevated coarsely granular. Potato: yellow, white, spreading, folded and abundant. Milk: first 24 hours apparently no change; after 48 hours acid production with slight coagulation, followed by peptonization. Bouillon: turbid in 24 hours; heavy, dry pellicle in 48 hours. Gelatin stab: growth rapid, with early infundibuluform liquefaction and grayish-white heavy, dry pellicle. The bacillus is sluggishly motile and large oval spores are formed in all media. The length varies slightly in different media. The organism is not pathogenic, no disturbance followed ingestion of bread containing large numbers. These characteristics, together with their abundance in bread, places it in the potato bacilli group.

An investigation was immediately begun to determine the source of the infection. Upon examination of the yeast, spores similar to those in the spoiled loaves were found; these, however, failed to grow upon ordinary media. Since the only literature available at that time suggested yeast as the source of the infection (No. 3), local representatives of the firm supplying it were invited to suggest remedial measures. Investigation showed that the bakeries in this locality using the same yeast were free from infection. One of the men from these bakeries, having had considerable practical experience, suggested acidifying the dough, either with lactic acid, 12 per cent solution, or acetic acid in the form of vinegar. Lactic acid, 12 per cent commercial, 1 3/5 ounces to 100 pounds of flour, or one pint of 10 per cent acetic acid vinegar was suggested. The addition of a 10 per cent (10.16 per cent total acidity) vinegar to the dough, together with a thorough cleansing of all utensils coming in contact with the dough with a saturated solution of boric acid was carried out, and this resulted in a complete eradication of rope from the bread. Experimental work later demonstrated that lactic acid in the proportion mentioned above was practically useless as a remedial measure.

It was learned that a large amount of flour used at this bakery had been stored on Government transports in Galveston, Texas, for a month or more, and cultures showed many potato bacilli in all samples. Its condemnation was seriously considered. A

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few of these bacilli were found in all samples of flour furnished; even when fresh from the mill. Rope in varying amounts was produced in the bread made for all samples of flour tested; when incubated for 60 to 72 hours at 37.5 degrees C., although the process was slower in fresh flours and those containing fewer organisms.

From the above facts one may appreciate the futility of fumigation of buildings and disinfection of utensils when the cause of the trouble is found in the flour itself.

In order to determine the power of inhibition of rope by vinegar and the infectivity of the organism with known amounts of flour and culture, the following experiments were performed. Five agar slant cultures were mixed with eight pounds of the best flour; to this was added 10 per cent vinegar in the proportion of one pint to each 100 pounds of flour. The same amounts were used in a control experiment without vinegar. A second control was used without either vinegar or bacillus. In each case the acid added was thoroughly mixed with the dough. All were baked in an oven at the same time. The bread was stored at room temperature for 24 hours and examined with the following result: bread with vinegar and organism was light and sweet; that without vinegar or organism was apparently good, while bread with organism but without vinegar was heavy and upon breaking was moist with a musty odor. All the loaves were incubated for twelve hours and again examined; and bread with vinegar was found unchanged; that without vinegar or organism was apparently good, while that without vinegar but with organism added was soft and ropy upon breaking the loaf, with a strong odor of unripe cantaloupe. The bread with vinegar was then incubated for one week in a moist chamber at 37.5 degrees C.; at the end of this time considerable mold had developed on the surface, but upon breaking the loaf there was no evidence of rope. The control without organism or vinegar showed small amounts of rope after three days' incubation and was unfit for food. The above experiments were repeated, using vinegar with a total acidity of 5.28 per cent in the proportion of one quart to each 100 pounds of flour with the same result.

The above experiments demonstrated the practicability of rope prevention in military posts and permanent camps. The transportation of vinegar in sufficient amounts for a mobile field bakery would be impracticable; hence it was thought advisable to search for some organic acid in solid form or a concentrated liquid. To determine this the following experiments were per-

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formed: Two agar slant cultures of potato bacillus were added to each pound of flour, the bread after baking was cooled at room temperature for 36 hours and then incubated with the following results:

No. 1. Control A. Without the addition of potato bacillus or acid. Rope in small areas after 72 hours' incubation.

No. 2. Control B. Potato bacillus without acid. Rope to marked degree; 36 hours at room temperature; semi-fluid after incubation for 24 hours.

No. 3. Lactic acid, 12 per cent solution, in proportion of 1 3/5 ounces to 100 pounds of flour; moderate amount of rope after 36 hours room temperature; semi-liquefaction after 24 hours incubation.

No. 4. Acetic acid, 10 per cent solution, one pint to 100 pounds of flour; moderate amount of rope after four days' incubation.

No. 5. Ordinary vinegar, 5.28 per cent acidity, 1 quart to 100 pounds of flour; bread protected for seven days incubation.

No. 6. Ordinary vinegar 5.28 per cent acidity, 1 pint to 100 pounds of flour; moderate amount of rope after three days' incubation.

No. 7. Citric acid, 10 per cent solution, 1 pint to 100 pounds of flour; rope after 36 hours room temperature; semi-fluid after 24 hours' incubation.

No. 8. Lactic acid, 5 per cent solution, 1 pint to 100 pounds of flour; moderate amount of rope after 36 hours at room temperature; semi-fluid after 24 hours' incubation.

No. 9. Lactic acid, 10 per cent solution, 1 pint to 100 pounds of flour; rope marked; semi-fluid after 72 hours' incubation.

No. 10. Acetic acid, 15 per cent, 1 pint to 100 pounds of flour; fresh bread slightly sour; no rope after 7 days' incubation.

No. 11. Acetic acid, 20 per cent, 1 pint to 100 pounds of flour; fresh bread sour; no rope after 7 days' incubation.

No. 12. Tartaric acid, 10 per cent, 1 pint to 100 pounds of flour; rope moderate after 72 hours' incubation.

No. 13. Tartaric acid, 15 per cent, 1 pint to 100 pounds of flour; no rope after 7 days' incubation.

No. 14. Tartaric acid, 25 per cent, 1 pint to 100 pounds of flour; fresh bread, sour; no rope after 7 days' incubation.

In all cases in the above experiments in which rope did not develop the potato bacillus was easily isolated by culture. From the above experiments the following deductions may be made: Rope may develop in bread from the best grade of flour under

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certain conditions of temperature and moisture. Lactic acid gives little or no protection. Ordinary vinegar when used in the proper proportion is successful. The protective power of vinegar does not depend entirely on its acetic acid content. Citric acid gives poor protection. Tartaric acid in sufficient quantities protects, but its only superiority over acetic acid or vinegar is due to its solidity and ease of transportation.

SUMMARY.

The *Bacillus Mesentericus,* or potato bacillus, is the cause of rope in bread. In this instance it was found in the flour. The organism was probably first introduced into the bakery by the flour which had been stored on transports in such numbers as to cause rapid destruction of bread. From this highly infected material the mixing utensils were contaminated in such a degree as to transmit enough organisms to the better grades of flour and continue the process indefinitely. Fumigation by formaldehyde or sulphur of bake shops or tentage in an infection of this kind is practically useless. The addition of 10 per cent vinegar in proportion of 1 pint to 100 pounds of flour is an absolute preventive. The food value of bread so treated is not reduced. In the absence of vinegar, the addition of acetic acid, 10 per cent solution, 1 pint to 100 pounds of flour, is the next most practical procedure. It is believed that a more general dissemination of knowledge of this condition among those connected with the making and handling of bread will be of value.

I am indebted to Major Conrad E. Koerper, Medical Corps, U. S. Army, for the privilege of reporting this work.

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Antiseptic Iodine Solution

By H. W. Yemans, First Lieutenant, Medical Reserve Corps, U. S. A.

THE following formula I have used to the exclusion of all others during the past eight years, with better results and greater satisfaction than any other disinfectant has ever given me:

Iodine	1.00
Potassium iodide	2.00
Salicylic Acid	5.00
Alcohol (70 per cent)	100.00

Undiluted, this solution may be made use of for sterilizing the hands and sites of operation; for disinfecting wounds, and for such other purposes as will readily suggest themselves.

For wet dressings and for irrigations it should be diluted with water so as to represent an iodine content of from 1:1,000 to 1:5,000; diluted to 1:25,000, I have used it for eye (gonorrheal ophthalmia) and urethral irrigations, with excellent results, though it is advisable to cocainize the eye previously.

This solution is not deleterious to instruments; in fact, it may be used for sterilizing them, other means failing.

The discoloration which it causes soon disappears, and it is not too irritating when used full strength for sterilizing the hands, providing that they are not previously subjected to that senseless procedure, violent scrubbing. When applied to them full strength, the hands should be well dried.

I will not offer gratuitous information as to the particular efficacy of the different ingredients; they are patent to all well informed medical persons. Nor will I expatiate upon their superiority to other disinfectants; they are evident to the observer.

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Antityphoid Inoculation of the National Guard

By Major Charles B. Walls, Medical Corps, Illinois National Guard.

EARLY in April we commenced the administering of antityphoid vaccine to the First Infantry, Illinois National Guard. We have had numerous inquiries as to what we had done and methods employed; hence we submit the following:

About one year ago, when the probability of service for the National Guard was in the air, some notices appeared in medical and military journals that various states had inoculated their guardsmen. The writer made several inquiries for details, how it was done, records, etc., but the replies received were not so satisfactory as to encourage him in taking up this preventive method, so the subject was dropped.

February, 1915, when the Sanitary Corps of the First Infantry, Illinois National Guard, was inspected by Major J M. Phalen, M. C., U. S. A., he called attention in his report to the fact that the organization had not received antityphoid inoculation. Subsequently we were called upon to *explain* why this had not been done. We replied that the State of Illinois did not require it, and if we did inoculate the guardsmen it would be purely voluntary on their part. However, we were authorized by the Adjutant General of the State to inoculate the First Infantry, but it must be *voluntary* on the part of the officers and men.

Our arrangements were as follows:

The Illinois State Board of Health furnished the necessary vaccine on one week's notice. The Adjutant General authorized the expenditure for the necessary medical supplies, alcohol, iodine, syringes, extra needles, etc.

One week before commencing the work, the organization was lined up by battalions and told what antityphoid inoculation was, how given, its benefits, and the possibility of a few cases having headache, malaise, etc., but that there would be no serious results. Inoculation was personally urged as a good thing, but the men were informed that it would be purely voluntary on their part. They were warned against excessive muscular exercise and consumption of alcohol for the first twenty-four hours after inoculation. Four evenings per week were devoted to inoculation, one battalion each night; the band, machine gun com-

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pany and hospital corps the fourth. The inoculations were given to the respective organizations one week apart, as it might not have worked so well to require the presence of the members at the armory on other than their regular drill nights. "Three doses are given at seven to ten days intervals." (Russell, Vol. V, Forchheimer's Therapeusis.)

For our records we utilized quarterly return blanks. These were made out by each company in the usual way, officers, non-commissioned officers, musicians, privates, etc., having columns for age, date, remarks for each respective inoculation, so that, as was the case with a number, if any were unable to be present the night that their company or organization received its first, second or third inoculation, our records would be absolutely correct.

We had privately informed each company commander, in the event of any member of his company reporting sick, etc., that he should immediately communicate this fact to the medical officer, etc. We did not so inform the men, to avoid psychic effect or malingering.

Upon reporting for the second or third dose, each man was interrogated, and the effects as per his answers recorded—soreness, stiffness of joints, headache, chills, etc.

Our method of administering was as follows:

Officers and men alike were lined up as their names appeared upon the blank, their backs exposed, (1) spaces between scapulæ, (2) lower angle of right scapulæ, (3) lower angle of left scapulæ were painted with iodine and the respective inoculation given. The painting of these locations was of assistance in administering the vaccine, especially when members presented themselves for first, second or third dose later than other members of his company, the location of the iodine stain would attract the administrators' attention, so that the proper dose would be given. All inoculations were given subcutaneously; pinching of the uplifted skin appeared to minimize the discomfort incident to the introduction of the needle-point; in a few cases, where the needle-point pierced the muscle, the reaction was greater and lasted more than forty-eight hours.

After inoculation, the needle-point was placed in alcohol, the syringe placed convenient to a H. C. Sergeant, who devoted his entire time to the filling of syringes from ampules; another H. C. Sergeant, with the aid of a Sergeant from the company being inoculated, kept tab of the records, and an H. C. private acted as artist with swab of cotton and iodine.

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We have administered 630 firsts, 550 seconds and 500 thirds to date; of this total of 1,680 inoculations, about 50 reported being affected; of this number one reported being ill and was confined to bed one week. His physician presumed that the guardsman must have had typhoid in his system before receiving the inoculation, as the symptoms were those of a mild case of typhoid.

Of a number of men in the organization who have had typhoid fever, some had previously received antityphoid inoculation. These did not receive a preventive, and about twenty-five may be put down as in poor physical condition, or as having declined to receive inoculation.

Considering that so large a proportion have taken this preventive so freely, the inquiry has arisen, how is it so many have submitted voluntarily? To answer this is neither simple nor easy. It may be due to any one of a number of factors or to them altogether, viz.: To presenting the benefits, to knowing that it was voluntary, and that no harm would arise from it; that it conferred three years of immunity from typhoid; to confidence in their officers, who submitted to it before members of their company, or to a prospective tour of 700 of the command who will act as escort to the Governor at the Panama Exposition.

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Reprints and Translations

Impressions of an Internist at Adrianople*

By Regimental Surgeon Dr. Karl von Mullern.

PRACTICALLY all contributions in the past on the Balkan war have dealt with the purely surgical side of this noteworthy campaign. To be sure, there were occasional and limited allusions to the sanitary management, but otherwise the standpoint exclusively taken was that of the number and treatment of battle casualties.

While war and wounds go hand in hand, it must not be forgotten that it is disease, to a great extent, which diminishes the strength and morale of the troops. Military history teaches that losses through disease, as a rule, greatly exceed those due to wounds.

A superficial review shows the following interesting figures: In the Crimean war, 1854-6, the French lost a total of 95,000 men of whom only 10,000 fell in battle, while the rest perished from disease—though it must be remembered that all sanitary arrangements were in the hands of the quartermaster department. The English, too, lost only 2,800 out of 22,000 dead from missiles of the enemy. Of the Russians, Moltke's saying presents historic testimony: "The Russian had in addition to the enemy who menaced their fronts, an invisible enemy who clung to their heels and crossed with them the Balkans and fell over them, long after a victorious peace had been concluded—we refer to the diseases."

In the Italian war, 1859-60, the number of wounded was about 13,000, that of the sick 112,000, and in the Franco-Prussian war, 1870-1, which from a sanitary standpoint was relatively favorable, the First and Third German Army Corps lost 56 per cent from disease, with but 35 to 36 per cent of battle casualties.

*Der Militarärzt, Nos. 11, 12, 1914. Translated by Maj. Gustavus M. Blech, M. C., Ill. N. G.

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The Japanese in the Manchurian campaign showed losses from disease exceeding those from wounds by 30,000. Finally, while no official data are as yet at hand, one will not err in asserting that in the last Balkan war the number of sick greatly exceeded that of the wounded.

The author spent four months in a part of the Balkan battlefield as a delegate of the Austrian Red Cross, and presents the following "Impressions and Experiences from the Standpoint of the Internist":

He left Vienna April 15, 1913, and reached Sofia on the 17th. Though originally intended for the hospitals of the Hinterland, Tirnovo and Varna, following a desire of the Queen he proceeded to Adrianople while the Austrian surgeons of the Red Cross went to Dedeagatsh.

This arrangement proved very satisfactory, for the newspapers had reported that all sorts of diseases were raging at Adrianople, thus promising a rich field for activity. This hope became eventually a realized fact, for, on entering Adrianople the traces of the siege were visible everywhere. Of course, reference is made here not to the Bulgarian shells, but to diseases.

Before proceeding to their discussion a sketch of hygienic conditions of the city during and after the siege will prove of value.

Adrianople is built on and at a hill, the top of which is crowned by the Selim temple of worship. The city is situated on the left side of the Maritza river and is surrounded north, south and west by a small river—the Tundsha. The river often floods the adjacent land, thus creating the best possible ground for the development of the anopheles and the occurrence of malaria.

Most of the streets are narrow and curved. They serve the inhabitants as depositories for all sorts of dirt—cadavers of animals remain on them for weeks, until they are either completely decomposed, offering nidi for countless flies or are dragged about by the scavenger dogs. The people live in low houses with adjacent gardens. There is a water system, but the water, good in itself, is polluted, because the pipes in the vicinity of sinks are not tight. The public water founts are placed close to the many cemeteries and are polluted by the dogs. The water is used to wash dead bodies, even of those who have died from infectious diseases. Only a small part of the town possesses a system of canalization, such as Yildirim, in which are found the military barracks. The sewers terminate in the Tundsha, infecting its water, which serves a large portion of the population. In most

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houses the sinks are open. There is scarcely any need to add another word to the notoriousness of the Turkish privies. In the stores for foodstuffs millions of flies cover everything.

Disinfection even against epidemics is violently opposed by the Mohammedan population, for everything is sent by "Allah," and against it all efforts of public health officers are in vain.

Under such conditions we had the best possible conditions for the spread of infectious diseases and the very worst for combating them.

In spite of these conditions the health of the soldiers and civil population during the first period of the siege must be designated as rather favorable, and this, considering the fact that there were not only 60,000 troops, but that the civil population was largely increased by refugees.

According to the official information by Dr. Behaeddin Bey, Sanitary Inspector of the Red Crescent, who was then in charge of sanitation, there were few cases of infectious diseases up to the middle of December, 1912. There was sufficient food, though the daily bread ration of the soldier was reduced from 900 to 800 and then to 700 grammes.

The first cases of cholera were brought in by Bulgarian prisoners of war, which proved the starting point for a fairly pronounced epidemic. While on one hand the newspapers exaggerated, on the other hand the figures given by the Turkish officials, that up to the fall of Adrianople (March 26, 1913), there were but 55 cholera cases, of which 30 perished, must be regarded as too low.

There was shortage of medical officers, so that one had to get along with sanitary sergeants. There was shortage of medicines and dressings. This sad condition of affairs was partially remedied through diplomatic intervention, allowing the transmission of a wagon load of needed articles for relief.

During the second period of the siege the sanitary conditions became worse and worse. The water supply was stopped, intense cold weather appeared and foodstuffs diminished fast, although in October, 1912, 5,000 tons of cereals were gathered into the city from the valley. Bread rations were gradually reduced until finally but 250 grammes were issued daily. There was plenty of meat, especially veal, so that the soldiers, who in the past received meat but twice a week, could be given meat rations every day. Towards the end of February, 200 horses were killed and—a fact inconceivable to us—the meat preserved

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by burial. Somehow the question of salt supply was forgotten, so that cheese had to be issued as a substitute.

The poorer classes suffered much. Foodstuffs could be obtained only at enormous prices, and a bread had to be made from cornmeal, flour and linseed meal. All these things favored a rapid increase of cholera, typhoid fever and dysentery, the dark triad, which was augmented by such affections as severe gastroenteritis and others.

But after the fall of the city sanitary conditions for some time became worse and worse. The arrival of Bulgaro-Servian troops meant the introduction of new diseases; the need for food became greater, and this the one-track railroad, hampered by military destruction of a bridge, was incapable of satisfying.

When the author arrived in Adrianople, the city, the suburb Karagatsh and the railroad station were transformed into a huge military camp. There were numerous military trains passing through the main street and few faces of civilians were seen in whom the physical and psychic suffering of the preceding weeks could not be discerned. The hospitals were overcrowded, the schools and a part of the public buildings transformed into hospitals. All of these contained relatively few wounded—the majority of patients suffered from internal or infectious diseases.

The author was assigned to the First Bulgarian Etappe Hospital (evacuation hospital) not far from the Selim mosque, formerly a school for non-commissioned officers. This hospital was divided into independent sections, each containing 2 or 3 wards, with a capacity of 100 to 125 patients. Administration was in the hands of Dr. Moloff (Bulgarian), who deserves much praise. In civil life superior physician to the Alexander Hospital in Sofia and assistant surgeon of the reserve, he had during the war the rank and disciplinary power of a major of the line. Filled with the highest patriotic sense of duty, a capable physician, charming albeit energetic, he knew how to achieve the best possible in spite of all prevailing deficiencies. The hospital had 6 sections, 5 for internal diseases and one only for surgical cases. The last section proved adequate, as no new wounded were added except those who were injured by careless handling of non-exploded shells. In June the surgeon had so little to do that he was excising tumors in order not to be idle. The medical departments were filled, requiring strenuous efforts to finish the day's work.

Only the second half of June afforded quiet—the quiet before

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the storm. At that time the troops at Adrianople were sent away and the new Odrin regiments brought new clinical material. Tremendous labor began, however, when the hospitals in the neighborhood of the Greek battlefields began evacuating their wounded to Adrianople. In addition 1,000 wounded reached the hospital between July 5 and 14, from the battles near Kukush Doiran and Nigrita.

Internal disease statistics and detailed descriptions of varieties will be omitted. Suffice it to say that the author treated more than 600 cases in his section, from which all surgical cases of the section are omitted.

Typhoid fever stands first in the list with 10% of the total morbidity. The clinical diagnosis was always supported by blood examination, by Widal's reaction, by the Diazo reaction, and by Ficker's diagnosticum. Baths were out of the question, and the administration of pyramidon and symptomatic treatment only were available. The injection of serum from convalescents, recommended by the French, had no influence whatever on the course of the disease. It is noteworthy that the Bulgarian soldier can tolerate very high temperatures, delirium seldom making its appearance. Mortality was low—only 6-8%. There was comparatively little dysentery, which ran a relatively favorable course, with or without treatment with polyvalent serum. We saw complicating liver abscess only occasionally, but all these patients died in spite of surgical operation. Bacteriologic examination showed Flexner's bacillus in all cases.

Only 7 cholera cases were in the hospital on the author's arrival, partly convalescent cases, because most cholera patients were sent to a special hospital, which was situated, however, in the neighborhood of the military barracks. On June 15 this hospital was closed for lack of physicians, and 30 patients, convalescents, but carriers, and a few acute cases were sent to the author's hospital. Owing to the impossibility of proper isolation and the poor construction of the building, it was sheer luck that the disease did not become epidemic. The cholera hospital proper will be discussed later.

As regards the other infectious diseases—all classes were represented with the exception of bubonic plague. Thus we saw variola, recurrent fever, measles, malaria, influenza, epidemic meningitis, tetanus, etc. Malaria was of the tertian type. It is endemic in Adrianople and in a part of Bulgaria, so that many

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patients were found with enormous spleens, a circumstance which was weighty in the diagnosis of other diseases.

Of other internal diseases there was naturally a large representation of affections of the digestive and respiratory apparatus. Only the most important will be mentioned.

Heart diseases as a complication of articular rheumatism were very rare, as were all organic diseases of the heart and arteries (arteriosclerosis), although we had occasion to examine many men above forty. Tuberculosis and diseases of the kidneys were relatively infrequent. Icterus (catarrhal) appeared twice endemically with symptoms of initial rise of temperature, slight enlargement of the spleen, and occasionally some diarrhea, disappearing after 2 or 3 weeks. The first time one had the impression of infection as all men came from the same regiment, the second time possibly the use of spoiled ham in cans of English make was the cause.

There were numerous cases of scurvy with occasional severe hemorrhages from the gums, in the muscles, beneath the periosteum and in internal organs. Of the treatment it is interesting to note that a few injections of "electrargol" sufficed to control the hemorrhages, and subjectively to improve the patient after other treatment had failed. As regards the blood it is noteworthy that considerable diminution of coagulability does not exist and the reduction of hemoglobin and morphologic changes must be looked upon as secondary phenomena.

The shelter of the patients was adequate considering the status of war. Most of them had their bed and a straw sack, cushion and blanket. Each patient was given a hospital overcoat, with which he lay in bed. It was with difficulty they were induced to remove it and the felt bandages with which they wrapped their legs before going to bed. Heat or body temperature did not influence their mode of life.

The patients endured their sufferings stoically and seldom complained. To all inquiries they complained "I cannot eat bread" no matter what their sickness was. The bread with this sturdy people is their main and often their sole meal. The diet was simple—an ordinary and a light diet. The former consisted of soup, meat and vegetables, the latter of milk and tea.

For diagnostic purposes the hospital had a highly practical outfit for bacteriologic purposes in an aluminum container and a small Zeiss microscope. The author and a French colleague had a good laboratory outfit. Not enough praise can be given Fick-

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er's diagnosticum for field service. Microscopes were plentiful, affording a service in the interest of science and for the clearing up of doubtful cases and sudden deaths.

Great difficulties in treatment were often encountered. This was not the patient's fault. They were very grateful for all that was done for them. Almost all had some schooling and realized the importance of hygiene, themselves demanding the isolation of patients they believed to suffer from cholera, remaining calm only when assured their diagnosis was wrong. The greatest difficulty was found in the attendants, who could not carry out orders because they did not know how. Each physician had one sanitary sergeant and several hospital corps men, who were adapted only to light work. Of nursing only few had any idea, and thus it happened that many patients with high temperature were obliged to go to the toilet unaided, collapsing on the way, or were given no food, or, if they suffered from incontinence, they remained lying in their feces until the physician ordered and supervised a change of bedding and stood by to see it done.

The lessons regarding preparatory training for sanitary personnel as well as military discipline to be learned from such a sad state of affairs are obvious.

The author condemns the "volunteer activities" of ladies "who distribute books and musical toys," demands good education of Red Cross volunteer female nurses, and predicts that not one-tenth of the pupils of "Samaritan lectures" will prove useful in just such conditions in time of war.

The author noticed the lack of valuable medicines and vaccine virus. One case of variola appeared, and in spite of immediate isolation the occupant of the adjoining bed developed the disease promptly after the period of incubation—14 days. Prophylactic vaccination, especially of those soon to go to the front, was necessary but physically impossible.

There were not enough pharmacists to fill prescriptions even if the materials had been on hand, and patients had often to wait a day to obtain necessary medicines.

In other hospitals the conditions were worse yet. The Second Bulgarian Evacuation Hospital had so few physicians that each medical officer was glad to be able to see his patients once daily.

The Turkish hospitals, though well equipped as to staff, were horrible—dirt and disorder prevailed everywhere. The physicians used dirty bandages and knew little about their patients'

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condition. A decided contrast, however, was presented by the hospitals of the Turkish Red Crescent. The excellence of these institutions was due to the purposeful initiative and energy of Dr. Behaeddin Bey, previously mentioned.

For purpose of study a visit was paid to the central cholera hospital. It consisted of several wooden barracks separated by small interspaces. One of these barracks contained acute, another convalescent and again another, cases still needing observation.

At a distance of 50 paces there were a number of tents for the staff, attendants, kitchen and administration. There was neither sign nor sentinel to warn off visitors not on business. Entrance to each barrack was in the middle, leading into an antechamber and right and left through small passage ways into wards. Antechambers and passageways had the floors covered with lime. Dejecta were treated with sublimate, removed, thrown into a trench and covered with lime.

The scenes of suffering defy description, even by hardened physicians. But even here we could help. There is no doubt that the intravenous injections of hypertonic saline solution favorably influenced the disease, as is proven by the small mortality of 200 out of 1,200 patients in the hospital. But there, too, the poor training of the military attendants became evident. These men ate their bread in the wards and interrupted their meal to do work. Two paid with their lives for such carelessness. Cholera is a disease against one can protect oneself as against typhoid fever—infection taking the route through the mouth.

The death of an officer of an artillery regiment, however, brought wonders. The commander of the regiment, thenceforth, allowed only hot bread and food to be served at mess, the utensils all being handed out in dishes of boiling water. At Tehataedcha the Bulgars took care to deliver only hot food and boiled water. It is a matter of interest that the Bulgars, on the advice of Russian physicians, added a few drops of tincture of iodine to their cognac for diarrheal diseases. In the cholera hospital all dead were wrapped in sublimated sheets and were buried in lime-filled graves on a hill, 150 meters away. The clothing of the dead and of the cured patients (no vibrio demonstrable), was sterilized by live steam.

(To be continued.)

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The Psychology of Traumatic Amblyopia Following the Explosion of Shells*

By J. Herbert Parsons, D.Sc., F. R. C. S. Eng.,
Ophthalmic Surgeon, University College Hospital, London; Surgeon to the Royal London (Moorfields) Ophthalmic Hospital.

(*Continued from May Issue*)

In the case of a soldier under shell fire the conditions are unique. The man is usually bodily fatigued, whereby his control is impaired. He has "the fear of death before his eyes" and is in a state of acute excitement, whereby his normal judgment is impaired. These conditions conspire to give his innate instincts ungoverned play. On the other hand, positive self-feeling, aided by suggestion and imitation and the sentiments of patriotism, the honor of the regiment, his own honor, and so on, enforce his volitional control. At last, however, the shock comes which strikes him unconscious. It is not to be supposed that he is thereby anæsthetized to these emotional storms. It is rather to be conjectured that he is rendered "subconscious," and hence the more a victim of his lower instincts. This view is supported by the emotional behavior of the men in the early stages, and by the fact that many of their actions can be revived by hypnosis.

The "unconsciousness" in these cases is to be explained physiologically by an abrogation of the functions of the highest level cortical cells. Recovery shows that the cells are not irretrievably damaged, and it is most likely that the block occurs on the afferent paths at the synapses of these cortical cells. Consciousness returns but there is blindness. So far as objective evidence goes the lower visual paths are intact and function normally. The optic nerves carry their impulses, at any rate as far as the pupil reactions are concerned. The condition resembles uræmic amaurosis. I have seen it also in children after post-basic meningitis. The block is somewhere above the so-called primary optic centers—external geniculate bodies, optic thalami, and superior colliculi. It, too, is probably in the synapses of the cortical cells, in this case the synapses of the fibers of the optic radiations. Sometimes such a block occurs physiologically and it is probably to be explained in the same manner. Everyone knows what may happen when reading an uninteresting book

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whilst the attention is diverted by some other train of thought. A paragraph is read and one suddenly becomes conscious of the fact that nothing has been conveyed to the mind. Yet on reading it again one may recall certain sentences as undoubtedly having been read though they failed to reach the fully conscious mind. Perhaps the suppression of the image of a squinting eye is to be explained in the same manner.

It is definitely stated by Dr. Myers that smell is partially lost in spite of the fact that there is no unpleasant odor noticeable when a shell explodes. This is probably to be explained by suggestion. I do not, however, think that it is necessary for the explanation of loss of vision and hearing that the visual and auditory paths respectively should have been definitely stimulated. These paths—situated in such intimate relation with the higher levels—play such a prepotent part in cerebral processes—equilibration, spatial percepts, and so on—that at any rate a partial visual block might be expected at times to persist beyond the recovery of consciousness. The duration of such persistence, however, is likely to be much greater if the primary shock has a powerful visual element, whether it be a blinding light or an awe-inspiring spectacle.

Though in the cases under special consideration there can be little doubt that the early loss of vision has a definite neural basis, it must, I think, be conceded that in the later stages the neural basis is of that undefined nature which we associate with so-called "functional" conditions. In other words, it is neurotic, but it is not "shamming," difficult though the line be to draw between them. I have had one case in which the vision of the left eye improved to 6/6, while that of the right improved to 3/36. By manipulating various glasses I succeeded in making the patient read 6/6 with + 0.5 D. sph. and — 0.5 D. sph. before the right eye and + 6 D. sph. before the left. He had the chance of taking a commission and was eager to do so. I feel convinced in my own mind, from his character and demeanor, that he was quite honest.

It has already been mentioned that in the earliest stage of recovered consciousness volitional control is almost or quite abrogated. The man is merely an emotional animal, or rather worse, for he is deprived of that intelligent control which plays such an important part in animal life. His behavior is hysterical, but it is a passive hysteria, unlike the commoner active hysteria in which the partially emancipated emotions are often guided by some preponderant ideational impulse. There can be little doubt that in this stage the most potent of the primeval instincts—fear

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—holds almost undisputed sway, irrespective of the normal character of the individual, for the loss of volitional control implies the loss of the co-ordination of all those complex factors which make up the character of the man. As recovery progresses the outward manifestations of fear are more and more masked or suppressed, for the self-regarding sentiment gradually again becomes restored. Its restoration, however, will be in accordance with the innate dispositions of the individual. If he is naturally mean-spirited it is unlikely that his self-regarding sentiment has developed beyond the stage of merely masking an ever-present pusillanimity; his motive power is limited to a sense of shame. If he is naturally of a fine character his fears will be suppressed with ever-increasing vigor as he becomes more and more conscious of the ideals of conduct which have shaped his character. In this stage of struggling to regain control the patient is at a disadvantage, and the acute observer will have the best opportunities for studying his springs of conduct. There are rare characters in which the emotion of physical fear appears to be non-existent, but in the vast majority of cases it is present, and however cleverly it is masked or however nobly it is suppressed it has to be reckoned with. If merely masked it will prove a very powerful incentive to the avoidance of renewed exposure to danger, and a temporary disability may give place to deliberate fraud. If suppressed it may yet require all the help which can be derived from the highest sentiments, reinforced by suggestion and by the active sympathy of discreet friends and advisers. These may all fail, but if so it is a case for pity and encouragement rather than contempt and obloquy.

It appears to me that these are the principles which should guide the medical adviser in his investigation and treatment of the case. We are accustomed to take the past histories and present conditions of our cases. In these "wounds of consciousness" the past history involves a difficult investigation of the innate dispositions and propensities of the individual, the environment to which he has been subjected in his home life, his school life and his further career, and last, but not least, in the special cases under consideration—the motives which led him to join the colors. For every man who enlists is not necessarily a ready-made hero. Many have enlisted merely because they are ashamed of not following the example of their friends. All honor to them; but they are not equipped with the sterling qualities of the man who is impelled by a noble ideal. The latter may recover completely from the shock, reinforced, indeed, by the sense of a

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moral victory won. The former may remain partial wrecks, too fearful of a renewal of their terrifying experience to be of any use in the fighting line. By injudicious forcing they may be wrecked entirely. On the other hand, by carefully studying their habits and tastes they may be switched off into other paths which will lead to the restoration of self-esteem and make them again useful members of society.

The investigation of the present condition is simply psychoanalysis in the true sense of that much abused term. Among the many instincts and sentiments which have been enumerated and which will require to be studied and weighed, the sexual instinct will hold its proper, and no more than its proper, relationship. It cannot be ignored, for it is at the foundation of the parental instinct, the tender emotion, and the sentiment of love. As such it is potent for good or evil, and it is the physician's part to utilize it for good as far as may be, and above all, not to frustrate that end by his own indiscreet probings.

As Dr. Myers has shown, hypnosis may be valuable in reconstructing the history. I am doubtful as to its use as a method of treatment, but others are better qualified to judge on that point. As regards herapeutic measures, it should be remembered that fright causes great exhaustion of the suprarenal glands.

I have restricted my remarks to a special type of so-called traumatic neurosis, but it is obvious that the principles which have been discussed are capable of wide-reaching application.

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Motor Ambulances in the Field

(As described in *The Times*, London, of May 14, 1915.)

The medical organization in the field, at the head of which is the Director General of Medical Services, consists at the front of two kinds of formations, those of Armies and those of Divisions. The former are under a Director of Medical Services who, while responsible for the technical working of all units and branches of the medical service within his Army, has under his direct control the large clearing stations established within easy reach of the railway, the motor ambulance convoys, and all sanitary arrangements in the particular Army area. The Divisional formations are under the Assistant D. M. S. of the Division, who controls the field ambulances, dressing stations, aid posts, and sanitary sections in the Divisional area.

To show exactly how these formations work, it will be as well to trace the normal progress to the rear of a man who has been struck down in the firing line. Wounded while advancing, he has possibly been left lying in the open under a hail of shrapnel bullets, which are striking the ground all around. From this hazardous position he is rescued by two stretcher bearers who, choosing their moment, rush across, pick him up, and carry him back to the shelter of a trench. These bearers may either be from his own unit—16 men of which, in the case of an infantry battalion, have been trained in first-aid and stretcher drill—or they may be men of the Royal Army Medical Corps belonging to a bearer subdivision of a field ambulance. They will take him to his "regimental aid post," probably situated in a dug-out, in a cellar, or in some sheltered spot giving cover from fire, where he will receive first-aid from the R. A. M. C. officer attached to the battalion. From there he will be conveyed either on a stretcher or, if circumstances permit and a road is handy, in a horsed ambulance wagon to the nearest dressing station.

AT THE DRESSING STATION.

So soon as he is placed in the ambulance wagon, he passes out of regimental care into the charge of one of the formations of a Division known as Divisional Field Ambulances. Such an ambulance is composed of three sections, each consisting of a bearer subdivision and a tent subdivision. The former are organized for the purpose of collecting the wounded, while the latter form dressing stations. The advanced dressing stations are pushed forward as close as possible to the front, and are situated in houses alongside roads so as to facilitate conveyance to and fro. Upon the arrival of the patient at one of these his wound is carefully attended to, and he is injected with anti-tetanic serum. He is then carried by a motor or horsed wagon belonging to a Divisional Field Ambulance to one of the larger dressing stations, which has been opened possibly in a school, a convent, or a church in some town or large village situated further to the rear, where he is made as comfortable as circumstances permit, and is given food and drink. Here he will probably remain for some hours while he and other sufferers are sorted according to the nature of their wounds, and prepared for transport to the casualty clearing stations. So soon as he is placed on a motor ambulance wagon belonging to a detachment of the Motor Ambulance Convoy

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and starts on the next stage of his journey he passes out of the hands of the Division into the formations which are under the direct control of the Army.

WAITING FOR THE TRAIN.

The Casualty Clearing Stations, to one of which the wounded man is now brought, are, under existing conditions, generally situated at the railheads, so that patients can be carried direct from them to the ambulance trains, though this would not always be the case in field warfare, for instance, where troops were advancing every day. Their position, however, is always chosen with a view to facilitate dispatch by ambulance or train. They are not hospitals in the true sense of the word; but a proportion of serious cases, such as those of certain kinds of injury to the head or abdomen, which cannot be moved without danger, may be retained in them for a considerable time. Although equipped and staffed to deal normally with 200 patients, they have a sufficiently elastic organization to be able, if necessary, to cope with much larger numbers during the progress of a battle, and special arrangements are made for temporarily augmenting the staff when severe pressure is expected. For instance, during the operations at Neuve Chapelle one clearing station admitted on an average nearly 800 wounded daily for four consecutive days, and within a period of six days received and passed on to the base a total of 3,653 cases. On such occasions the work goes on incessantly day and night, and the strain brought on the physical capabilities of the staff is naturally very great.

It is in one of those stations that the patient will for the first time experience the luxury of being tended by nursing sisters and of lying on a bed—probably one procured from the neighborhood. The length of his stay will depend on the railway facilities; but as a rule it will not be more than a few hours before he is placed on an ambulance train. Once on board the train, he leaves what is known as the "Collecting Zone," and enters the "Evacuating Zone," and at the same time passes out of the charge of the medical authorities of the Army into that of the line of communications.

There are 14 ambulance trains now running. Each has a *personnel* of three officers and 47 other ranks R. A. M. C., and three nursing sisters.

ARMY AND VOLUNTARY HOSPITALS.

On arrival at a base the wounded man is again carried in a motor ambulance wagon to a fully equipped permanent hospital—a place of treatment which he now enters for the first time. These hospitals are of two kinds, General and Stationary, the difference between the two lying chiefly in the number of patients they are designed to accommodate.

A third category of hospitals found at the bases is composed of Red Cross or Voluntary Hospitals. The *personnel* and equipment of these are provided by the society or subscribers who organized the unit; but each is under the command of an officer of the R. A. M. C. These establishments vary in capacity. Some are directly provided by the British Red Cross Society, and others work under its auspices. The remainder are: The Australian Voluntary Hospital which was the first of its class to land in France during the early part of the war; and the Liverpool Merchants' Hospital, which has only quite recently arrived. The Allied

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Forces Base Hospital, which has rendered useful service, has been temporarily closed, but will reopen at an early date.

All the base hospitals are established in huts, tents, or in buildings suitable for the purpose, such as hotels or casinos.

The duration of the patient's sojourn in one varies directly with the nature of his wound. Very severe cases, which it would be inexpedient to move, and slight cases likely to be fit for duty or discharge to a convalescent camp within three weeks are retained. Those which are unlikely to recover within three weeks and will not be harmed by further transport—and by far the largest number comes within this category—are sent to England so soon as accommodation is available on board a hospital ship.

THE AMBULANCE BARGE.

One great difficulty which has been experienced is that of reconciling the need of seriously wounded men for complete rest with the necessity for avoiding the congestion which would be caused by retaining them at the casualty clearing stations during an action, a time when very large numbers of wounded have to be dealt with.

The solution of this problem has been found to a limited extent in the employment of water transport on the excellent system of canals with which Northern France is supplied; and serious cases of this nature are carried by barge from the clearing stations near the front to the most advanced hospitals on the lines of communication.

Among the many and diverse duties which fall upon the Royal Army Medical Corps during war perhaps none present more intricate problems than those which arise in connection with the evacuation of wounded. And it is safe to say that during the present campaign none have been performed with greater efficiency—often in the face of immense difficulties imposed by the nature of the military operations.

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Editorial

THE WASHINGTON MEETING.

At a meeting of the Executive Council of the Association, held in Washington, May 25, it was decided that the twenty-fourth annual meeting of the Association should be held in Washington, Monday, Tuesday and Wednesday, September 13, 14 and 15. Further details will be announced later.

This meeting of the Association, held at the fountainhead of medico-military learning, should be one of the most illuminating and valuable in the history of the organization. It will be *par excellence* a working meeting, in which the social features, instead of dominating, as has been the case with so many of our recent meetings, where the lavish hospitality of our hosts has almost dimmed the brilliancy of the scientific programs, will be subordinated to the literary and scientific work of the sessions.

The place selected for the meeting is the military Mecca of America. The time fixed is one which should not conflict with the summer vacations nor with the medical teaching dates of our members. The United Services will have a much fuller representation than would be possible in any other city. With all these advantages and the hearty co-operation of the Organized Militia and the Medical Reserve Corps of the Army and Navy, and with the wealth of material that should be in our hands at that time, this meeting can be made most notable.

THE JOINT CAMPS OF INSTRUCTION

In the May issue of THE MILITARY SURGEON, under the head of General News, the announcement was made that Camps of Instruction would be conducted during the coming summer for officers and non-commissioned officers of the Organized Militia

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and for officers of the Medical Reserve Corps, inactive list. The programs in detail follow.

The reiteration of the slogan, "Let us prepare," may have wearied the readers of THE MILITARY SURGEON. No such attitude of mind, however, can disguise the fact of our unpreparedness for service. In days gone by, when encampments were picnic and junketing trips, the ranks of the various militia organizations were full and all were enthusiastic.

Today situations of grave import confront us, and the government in appreciation of the seriousness of the situation is striving to increase the efficiency of its military forces; the work at camps of instruction is more strenuous each year, and the responsibilities of the officers are more grave and absorbing. The tours of duty at camps are not now vacation trips, but periods of serious and engrossing toil.

These camps of instruction are, as yet, hardly out of the experimental stage, but that the government is deeply interested in their success is shown by the fact that it will spend this season nearly $60,000, in the payment of transportation expenses, for subsistence and the like. As a result, every field hospital and ambulance company of the Organized Militia is given an opportunity this year to participate in the advantages to be derived from these camps.

In Europe, notwithstanding all the care that has been taken, notwithstanding the painstaking consideration which has been given to the problem of caring for the sick and the wounded, the reports from the battle areas clearly demonstrate the inadequacy of the means provided with regard to personnel and material. Despite our boasted progress in the matter of medico-military preparedness, the wounded are still too often left lying on the field uncared for, the medical staff is overworked, and the only bright spot in the whole picture is that which indicates the advance made by preventive medicine in so materially lowering the ratio of the diseased to the wounded.

We cannot afford to neglect this opportunity of obtaining the latest practical information regarding our duties as sanitary officers. The government is furnishing the camps, the teachers, the personnel and the equipment. Let us do our part by supplying large and enthusiastic classes of earnest officers and men, not afraid to work, eager to improve and perfect themselves in the details of the art of keeping soldiers well, of caring properly

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for them when ill, of treating them scientifically when wounded and of rendering that most important service, namely, the keeping fit for duty the greatest possible number of men.

Programme of Instruction for Medical Officers' Camps of Instruction —1915—

FORENOON

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
6:00–6:15		General police.	General police.	General police.	General police.	General police.
6:15–6:30		Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.
6:45	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.
7:30–8:30	Assignment to quarters.	Litter drill	Litter drill.	Litter drill. and first aid.	Medico-Military Problem. Using Field Hospital Ambulance Company and Regimental Infirmary. All student officers and non-commissioned officers participating. At noon a recess of one hour will be taken, during which time all officers and non-commissioned officers will cook their own meals.	General inspection.
9:00–9:50	Lecture by Camp Commander on conduct of camp.	Ambulance drill.	Property requisition for accountability.	Important papers and blank forms connected with Medical Department.		Lecture: Camp sanitation, personal hygiene.
10:00–10:50	Inspection of Field Hospital and Ambulance Co.	Recruiting papers, blank forms, importance of.	Military correspondence.			Lecture: Camp conservancy, relation of diseases to camp life.
11:00:11:50	Lecture: Regimental infirmary.	Property protection, accountability, responsibility.	Duties of regimental medical officers.	Disposition of property, worn out, lost, etc., surveys.		Recruiting: Demonstration of method of examination.
	Mess.	Mess.	Mess.	Mess.		Mess.

AFTERNOON

1:00-1:50	Lecture: Field hospitals.	(For officers) Saber drill	Ambulance drill for enlisted men. Ceremonies, reviews, for officers.	Field hospital, hospital to be taken down and loaded on field wagons.		Map reading, visibility problems.
2:00-2:50	Lecture: Ambulance Company's duties.	Preparation of blanket rolls, demonstration of pack saddle.	Ambulance Company drill, including establishing of dressing stations.			Discussion of week's work.
3:00-4:00	Duties of Medical Department.	Tent pitching.		General talk on problem to be held on following day.		
4:10-4:40	Stables, grooming.	Equitation.	Saddling and bridling.	Equitation.		
5:15	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.

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Programme of Instruction, Ambulance Companies Joint Camps — 1915

FORENOON

	1st Day.	2nd Day.	3rd Day.	4th Day.	5th Day.	6th Day.	7th Day.	8th Day.	9th Day.
6:00-6:15	General police.	General police.	General police.	General police.	General police.	General police.	General police.	General police.	General police.
6:15-6:30	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.
6:45	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.
7:30-8:30	Lecture by Camp Commander on conduct of camp.	Litter drill.	Allowed for Sunday Lectures.	Uses of personal equipment.	Ambulance Company drill, re-establishing camp, establishing dressing stations.	Practical exercises with Field Hospital.	Lecture on field cooking.	Entire day devoted to working out medical field problem. During one hour noon rest all officers and enlisted men will cook their own meals.	Discussion of problem.
8:40-9:40	General inspection of Ambulance Company.	Lecture on camp sanitation.		Lecture on first aid.			Lecture on procurement of supplies.		Lecture on camp sanitation.
9:50-10:50	Foot drill.	Foot drill.		Company drill, unmounted.	Lecture on care of property.	First aid and bandaging.	Tent drill, including pitching various kinds of tents.		Personal hygiene.
11:00-12:00	Litter drill.	Ambulance drill.		Lecture on dressing stations.	Ambulance drill.	Ambulance drill.			Open discussion, Ambulance Companies on the march.
	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.		Mess.

AFTERNOON

1:00-1:50	Duties of Ambulance Companies.	Forms, papers, for Ambulance Company.	Open.	Open.	Open.	F. S. R., Orders and sanitary service.	(Officers and non-commissioned officers), map reading, visibility problems.		Pack saddle, equipment for dressing station.
2:00-2:50	Harnessing, saddling, driving and riding.	Horse exercises.		Ambulance Company drill, breaking camp, loading equipment on wagons.	Ambulance Company drill.	Care of the picket line.			Discussion on course with suggestions for improvement.
3:00-3:50		Ambulance Company drill.				Pack saddles, pack equipment.	Preparation blanket rolls.		Checking up property.
4:00-4:45	Stables, grooming.	Stables, grooming.	Stables and grooming.	Stables, grooming.	Stables, grooming.	Stables, grooming.	Stables, grooming.		
5:15	Mess.	Mess.		Mess.	Mess.	Mess.	Mess.	Mess.	

This schedule will be adhered to as nearly as possible. In some cases it will be necessary to re arrange dates or hours of instruction to suit conditions.

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Programme of Instruction, Field Hospital Joint Camps

MORNING

	1st Day.	2nd Day.	3rd Day.	4th Day.	5th Day.	6th Day	7th Day.	8th Day.	9th Day.
6:00-6:15	General police.	General police.	General police.	General police.	General police.	General police.	General police.	General police.	General police.
6:15-6:30	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.	Setting up exercises.
6:45	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.
7:30-8:30	Lecture by Camp Commander on conduct of the camp.	Litter drill.	Allowed for Sunday lectures.	Uses of personal equipment.	Hospital drill, laying out plan of camp and pitching hospital.	Practical exercises, receiving patients, assigning to wards and discharging them, preparing all papers.	Lecture on field cooking.	Entire day devoted to working out a field problem. During the noon rest officers and men will cook their own meals.	Discussion of problem.
8:40-9:40	General inspection of Field Hospital.	Lecture on camp sanitation.		Lecture on first aid.			Lecture on Procurement of supplies.		Lecture on camp sanitation.
9:50-10:50	Foot drill.	Foot drill.		Company drill.	Lecture on care of property.	First aid and bandaging.	Tent drill, including pitching various kinds of tents.		Lecture on personal hygiene.
11:00-12:00	Litter drill.	Ambulance drill.		Lecture on dressing stations.	Ambulance drill.	Ambulance drill.			Open discussion Field Hospitals.
12:15	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.		Mess.
				AFTERNOON					
1:00-1:50	Preparation of forms and papers for Field Hospital.	Preparation of forms and papers for Field Hospital.	Open.	Hospital drill, taking down hospital and loading on field wagons.	Open.	F. S. R., orders and sanitary service.	(Officers and non-commissioned officers), map reading, visibility problems.		Pack saddle, equipment for dressing stations.
2:00-2:50	Harnessing, saddling, driving and riding.	Harnessing, saddling, driving and riding.			Harnessing, saddling, driving and riding.	Care of picket line.			(Officers) Discussion on course with suggestions for improvement.
3:00-4:00				Open.		Pack saddles, pack equipment.	Preparation blanket rolls.		
4:00-4:45	Stable and grooming.	Stable and grooming.	Stable and grooming.	Stable and grooming.	Stable and grooming.	Stable and grooming.	Stable and grooming.	Stable and grooming.	
5:15	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.	Mess.

This schedule will be adhered to as nearly as possible. In some cases it will be necessary to re-arrange dates to suit conditions.

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Current Literature

FRANCE

Bulletin de l'Académie de Médecine.

April 6, 1915.

1 Meningococcic Arthritis, Its Value in Relation to Cerebro-Spinal Meningitis and Its Importance from the Point of View of Prophylaxis. Paul Sainton and Jean Maille.
2. *Contributions to the Study of Certain Typhoid Conditions During the Campaign of 1914-1915. A. Sartory, L. Spillmann and Ph. Lasseur.
3 Visual Qualifications for Military Service. Etienne Ginestouns.

2. **Contributions to the Study of Certain Typhoid Conditions During the Campaign of 1914-1915, by Drs. A. Sartory, L. Spillmann and Ph. Lasseur,* summarizes the bacteriologic researches made in more than 800 cases coming from the trenches of the Woëve district or the Hauts-de-Meuse. These physicians have found it necessary to classify beside typhoid fever and paratyphoids A and B another class of typhoids which differ clinically from typhoid either by the absence of one or more of the symptoms usually frequent in the true Eberthian infection or by modifications of the temperature curve or by differences of evolution or by the presence of rare symptoms. It seemed to the authors possible to distinguish three types of evolution: (1) A type light and abortive; (2) a type combined with gastric fever lasting from 12 to 15 days, and (3) a type approaching a typhoid of moderate intensity and lasting from 20 to 30 days. The authors insist on the presence of the diplococcus, which they isolated in 15 per cent of the cases. They conclude that clinically the physician should be more careful in diagnosing tyhoid or parathyphoid fever. The authors will soon publish a memoir of their continued researches in *Les Archives de Médecine Expérimentale.*

April 13, 1915.

4 *Normal and Pathologic Glycuronuria: Its Variations in Cirrhosis and Diabetes. Henri Roger in collaboration with Maurice Chiray.
5 *Sterilization by Formalin Vapor in War Surgery. Georges Gross.
6 *Wounds of the Eye in War. A. Darier.

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4. **Normal and Pathologic Glycuronuria: Its Variations in Cirrhosis and Diabetes, by Henri Roger, in collaboration with Maurice Chiray,* is based on 17 observations. The researches were interrupted by the mobilization of one of the authors, but from studies in the most widely differing forms of the disease they have come to one interesting and certain conclusion, namely, that the urine of diabetics *never* contains glycuronic acid.

5. **Sterilization by Formalin Vapor in War Surgery, by Georges Gross.* Surgeons appear to ignore, for the most part, the wonderful services of this sterilizing agent. The author began in 1907 a series of experiments on the best manner of obtaining absolute sterilization of rubber gloves. The perfect results he has obtained with formalin vapor, confirmed by the experiences of Perdrix of the Pasteur Institute, show that sterilization not only of gloves and instruments but even of thread and compresses was constant and complete and identical with those obtained by the drying stove and by the autoclave. Moreover, there is an advantage. Gloves do not lose their suppleness and wear out less quickly; scissors and needles do not lose their sharpness—do not rust; while for linen threads there is the very great advantage of their retaining the appearance of new threads, remaining thin and dry and not becoming breakable. Compresses sterilized with formalin vapor not only become microbe free, but being lightly impregnated with formalin have a special and favorable action on infected wounds. To accomplish the sterilization it is necessary only to leave the objects to be sterilized in an atmosphere saturated with formalin vapor for 24 hours at a temperature of 17 degrees centigrade, or for two hours at a temperature of 25 degrees centigrade, or 20 minutes at a temperature of 50 degrees. The author then describes a sterilizer that he has constructed for this method of sterilization. Its dimensions, 45 cm. long by 21 cm. high and 18 cm. wide, are sufficient to permit the surgeon to sterilize everything he uses. Another type of sterilizer is also described which is calculated to meet the needs of dentists.

6. **Wounds of the Eye in War, by A. Darier,* is a brief article closing with the plea that wounds of an organ so precious as the eye and in view of their ever increasing number in the trenches ought to receive special provision from the military authorities. The intervention of an oculist should be prompt and the first aid surgeon should have a special evacuation line for ocular wounded, since these ought to be evacuated to an ophthalmologic service with the least possible delay.

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ENGLAND.

Journal of the Royal Army Medical Corps

January, 1915.

7 *The Treatment of Anaerobic-Infected Wounds with Lactic Acid. L. W. Harrison.
8 *Preliminary Observations on the Use of an Autogenous Living Vaccine in the Treatment of Enteric Fever. E. A. Bourke, Idris D. Evans and Sydney Rowland.
9 A Gossip on Words from Our Journal. R. H. Firth.
10 A Note on Fevers Resembling Sand-Fly Fever at Singapore. A. C. H. Suhr.
11 A Case of Shrapnel Bullet in the Spine; Paraplegia; Laminectomy; Partial Recovery. C. Hamilton Whiteford.
12 *Adaptation of a Railway Porter's Truck for Carriage of Wounded. N. E. Harding.
13 A Case of Lymphosarcoma. C. E. Pollock and G. Ormrod.
14 *A Form of Folding Trestle for Conversion of a Stretcher Into an Improvised Bed. D. Macfayden.
15 Abdominal Suppuration Co-existing with Measles. N. E. Harding.
16 Tincture of Iodine and the Prevention of Venereal Diseases. M. F. Foulds.

7. **The Treatment of Anaerobic-Infected Wounds with Lactic Acid, by Maj. L. W. Harrison, D. S. O., R. A. M. C.,* details attempts at treating wound cavities as culture flasks, filling them from time to time with 10 per cent solution of lactic acid. In this treatment it is essential that pus from the depths of the wound be tested with litmus at each dressing, since if the reaction is not distinctly acid, the lactic acid has not been applied in such manner as to fulfil its mission. If further trial shows that lactic acid acts in the manner indicated in Major Harrison's cases, then it should not be necessary to open out wounds so freely as at present. Major Harrison says he has no evidence that lactic acid is of any use against cocci.

8. **Preliminary Observations on the Use of an Autogenous Living Vaccine in the Treatment of Enteric Fever, by Maj. E. A. Bourke, Lieut. Idris D. Evans and Lieut. Sydney Rowland,* is accompanied by clinical notes and temperature charts of the first six successive cases treated by this method. These cases demonstrated that this method of injecting living bacilli in suitable doses is perfectly safe. The vaccine was injected subcutaneously, as a rule, in the pectoral region, and was followed by very slight local reaction, but marked general reaction. There were no local or general complications. The injection, as a rule, was followed by a rise of temperature within the first few hours, followed by a marked fall within twenty-four hours after inocula-

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tion. There is no doubt in the minds of the authors that the treatment has a beneficial effect and tends to cut short the duration of the disease. It promotes perspiration and the aspect of the patient is brighter after injection and the tongue much cleaner. The diagnosis was verified in every case by blood culture and several of the cases on admission to hospital gave the impression that the attack would be a severe one. The article describes the preparation of the vaccine.

12. **Adaptation of a Railway Porter's Truck for the Carriage of the Wounded, by Maj. N. E. Harding, R. A. M. C.,* is accompanied by illustrations which make perfectly clear this simple device for moving patients able to sit up but otherwise helpless. An ordinary folding camp chair with the back legs sawn off is attached to the truck by two ordinary brass coat hooks screwed into the middle rail of the chair upside down. A small block of wood can be screwed on to the underside of the bar on which the legs rest to prevent the chair shifting. A woman or child can transport a heavy man without fatigue in this contrivance which, by the way, was invented by a woman, Mrs. Thorp of V. A. D., London.

14. **A Form of Folding Trestle for Conversion of a Stretcher Into an Improvised Bed, by Capt. D. Macfayden, R. A. M. C.* (*S. R.*), describes the kind of stretcher bed now in use in Clearing Hospital No. 1. The object in inventing the stretcher bed was to obviate the necessity of accommodating seriously wounded cases on stretchers simply placed on the floor. The article describes the construction of the trestle, the method of packing them, 11 trestles packed together occupying 9.7 cubic feet and weighing 88 pounds.

The stretcher on trestles has the advantage of making it possible to keep the floor below and around the stretcher clean without moving patient; it is easier to dress cases raised on the stretcher than laid on the floor; the patient suffers less from cold draughts; the patient can be moved from one place to another without being lifted off the stretcher. The article is accompanied with three clear illustrations.

Journal of the Royal Naval Medical Service

April, 1915.

17 *Preliminary Report of a Committee appointed by the Director-General of the Medical Department of the Navy, in December, 1914, to inquire into the best method of treating Wounds Sustained in Action, especially during the early period after their infliction. Watson Cheyne, P. Bassett-Smith and A. Edmunds.

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18 *Report on the Casualties in the Action Between the *Pegasus* and the *Königsberg*. A. J. Hewitt.
19 *The North Sea Action of January 24. John R. Muir.
20 *Some Experiences in a Hospital Carrier. Kenneth H. Hole.
21 *Recent Research Relating to Undulant or Mediterranean Fever. P. W. Bassett-Smith.
22 An Outbreak of Enteric Due to Oysters. H. W. B. Shewell and C. Devereux Marshall.
23 A Possible Case of Typhoid Inoculation Fever. Frederick G. Hitch.
24 An Outbreak of Beriberi in R. I. M. S. *Northbrook*. G. R. McCowen.
25 Intracranial Disease and Glycosuria, Notes on Two Cases. Frederick G. Hitch.
26 Penetrating Bullet Wound of the Thorax and Abdomen. George A. Dreaper.
27 A Method of Growing Yeast for Making Bread. E. L. Atkinson.
28 Spenglers Pikrin Method of Staining Tubercle Bacilli. Robert M. Riggall.
29 Adaptation of Sterilizer for Use with Steam Geyser. Adrain A. Forrester.
30 A Scuttle Ventilator. Montague H. Knapp.

17. **Preliminary Report of a Committee appointed by the Director-General of the Medical Department of the Navy, in December, 1914, to inquire into the best method of treating Wounds Sustained in Action, especially during the early period after their infliction, by Sir W. Watson Cheyne, Bt., C. B., F. R. S., Consulting Surgeon R. N.; Fleet Surgeon P. W. Bassett-Smith, C. B., R. N.; and Mr. Arthur Edmunds, F. R. C. S., Consulting Surgeon, R. N.,* is a very extended well illustrated article. Of the substances tested for treating the wound immediately on its infliction boric and salicylic acids, cresol and carbolic acid seem the best. Cresol and carbolic acid have very considerable activity at a distance, both as inhibitory and destructive agents, and when combined in a wax and lanolin base go on diffusing for a very considerable time. The result is that they prevent the growth of bacteria over a considerable area, and are able to destroy the ordinary pyogenic non-spore-bearing bacteria over the greater part of that area. The mixture of boric and salicylic acids is more potent in both directions but is not so suitable on account of its not being stored up in the same way. Boric acid and salicyclic acid did not act so well in pastes as in powder. But a powder is not so satisfactory as a paste in wounds in war, because it would be very difficult to apply it to the whole interior of the wound; and it would be apt to be carried away by the blood and lost. The committee, therefore, propose that borsal (salicylic acid and boric acid

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in equal parts) should be used as a powder and thickly dusted over the wounds as far as possible,* and that its action should be reinforced by the injection of cresol paste (20 per cent in lanolin and wax base) into the interior of the wound in various directions. The soiling of wounds with earth is not likely to extend to any great depth, and the borsal powdered over a wound, especially if it is well open and the bleeding has stopped, will probably overtake the severe earth infection, while the septic organisms carried on farther will be dealt with by the cresol. At any rate, the growth of the organisms will be inhibited over a large area till the patient reaches the dressing station.

These preparations are now issued by all the Royal Naval Hospitals, together with a memorandum of instructions. They are in the form of pepper-pots containing 1 ounce each of borsal and of collapsible tubes containing ½ ounce of 20 per cent cresol paste. The cresol tubes are provided with nozzles about 2 inches in length, which are screwed on the ends of the tubes, so that they can be introduced into the depths of the wound in various directions. The tube is to be used on only one patient and then thrown away. For naval contingents acting on shore each man should have a pepper-pot and tube in his field dressing. In the case of a wound at the front the first thing is, of course, to check the bleeding as much as possible and then to powder the whole surface thickly. The cresol tube is then introduced into the wound and small quantities of the contents are squeezed into it in various directions, endeavoring as far as possible to leave small portions of the paste scattered over the whole area of the wound, not more than 1 inch apart. Some of the paste should also be smeared over the skin around the wound, and after a final dusting with the borsal powder the emergency dressing is applied.

When the patient arrives at the dressing station the treatment will depend on circumstances. Patients can wait or the orderlies can repeat the above dressing.

Complicated wounds should be cleaned and disinfected, preferably with 1 in 20 carbolic lotion, then washed out with peroxide of hydrogen and in 1 in 20 carbolic lotion. After which the wound should be dressed and held open and the borsal and cresol dressing repeated. If widely open it may be well to bring edges together with a few interrupted sutures to prevent escape of the antiseptics and finally to apply antiseptic dressings.

*It will be remembered that during the Spanish-American War Colonel Senn proposed the use of a powder composed of salicylic acid one part and boric acid four parts, and that this was employed with a considerable measure of success.—Ed.

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If the wound is not large and the clot seems solid all that need be done is to squeeze paste and dust powder over surface and leave it alone till the base hospital is reached. There the experience of the surgeon must dictate the further procedure.

18. **Report on the Casualties in the Action Between the "Pegasus" and the "Königsberg," by Staff Surgeon A. J. Hewitt, R. N.* As the result of this action there were one killed and 77 wounded. Surgeon Hewitt says that stretcher parties were useless on this occasion, and his conclusion is that in unprotected ships, instead of having collecting stations with stretcher parties he would rely more on the wide distribution of first aid dressings, including a bottle of tincture of iodine and a brush, and a thorough instruction of the ship's company in first aid. As the electric light is almost certain to fail in compartments that have been hit and as these spaces may contain a number of wounded, Surg. Hewitt suggests that electric torches be provided for first aid parties as giving good light free from risk of fire.

The article describes the arrangements for the treatment of wounded in action on the *Pegasus,* the collecting stations, the stretchers—which were found so unsuitable that Surgeon Hewitt was obliged to make alterations on the spot,—the transport of the wounded and the conveyance of men in the Hospital Ship *Gascon,* and concludes with several pages of notes on the cases.

19. **The North Sea Action of January 24 by Staff Surgeon John R. Muir, M. B., R. N. (H. M. S. "Tiger")*, describes in detail the medical arrangements on the *Tiger* and the manner in which they were carried out during the action of January 24. General arrangements, forward distributing station, after distributing station and the personnel attached to each are taken up in turn. A description of the action follows. The article closes with notes on cases of interest. Surgeon Muir states that the Neil Robertson stretchers were of great service. The explosion of the shells caused a black, oily, sooty deposit in the skin of nearly all the patients. This was readily removed with turpentine, but nothing else, soap, water, or spirit had any effect. All wounds were treated with iodine or pure carbolic, the skin surface being washed with rectified spirit before the application of iodine. It is the writer's opinion that in one instance the pure carbolic caused dry gangrene to take place in a large proportion of a large flap wound on the inner side of a knee.

20. **Some Experiences in a Hospital Carrier, by Surgeon Kenneth H. Hale, M. B., R. N.,* is an account of experiences

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on the steamship *Munich*, carrying Belgian wounded from Calais to Southampton. The article is extremely interesting, the writer without giving statistics, picks out and describes interesting incidents from the 7,000 cases transported.

21. **Recent Research Relating to Undulant or Mediterranean Fever, by Fleet Surgeon P. W. Bassett-Smith, C. B., R. N.*, first discusses the numerous names which have been given to the disease. The geographical distribution is shown to be world wide. The Maltese goat comes in for a few words, as does also the possibility of other ruminants carrying the disease. The three F's, food, fingers and flies, are also shown to be possible carriers of the organism. The body of the article is devoted to the pathogenicity of the disease. The writer asserts that the disease has been practically eradicated from the naval and military services where protection of the food is properly carried out, but the disease is still rampant in many sections and the source of infection is by no means limited to ingestion of contaminated milk, but is frequently brought about by direct inoculation, particularly in rural districts. His final word is that all cases ambulant or otherwise should be looked upon as potential carriers.

The Lancet.

April 24, 1915.

31 *Wound Infections and Some New Methods for the Study of the Various Factors to be Considered in Their Treatment. A. E. Wright.

32 *Some Physical Defects Met in the Raising of an Army. Thomas Oliver.

33 The Treatment of Gunshot and Shell Wounds with Special Reference to Carbolized Glucose as a Dressing. H. Beckwith-Whitehouse.

34 Memorandum on the Treatment of the Bacterial Infections of Projectile Wounds. F. F. Burghard.

31. **Wound Infections and Some New Methods for the Study of the Various Factors to Be Considered in Their Treatment, by Col. Sir A. E. Wright, F. R. S.*, is an address delivered before the Royal Society of Medicine, March 30. Colonel Wright is consulting physician to the Expeditionary Force, and the address was written from the Research Laboratory attached to No. 13 General Hospital at Boulogne-sur-Mer, France. This is the second section of the address and deals with the three methods of combatting wound infections, treatment by antiseptics, treatment by physiological methods and vaccine therapy. In regard

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to the first, he says that antiseptic method, considered as a method for preventing the importation of foreign germs into the wound, deserves the highest praise, but when we pass from prophylaxis to treatment then its non-success is obvious. The article is to be continued, and that portion in this issue terminates with the discussion of what would be the proper culmination of the treatment of wound infections by physiological methods.

32. **Some Physical Defects Met With in the Raising of an Army, by Sir Thomas Oliver, F. R. C. P.* Sir Oliver is Honorary Colonel of the 20th Battalion of the Northumberland Fusiliers, known as the Tyneside Scottish, and the districts of Newcastle and Tyneside alone have given to the navy and army between 40,000 and 50,000 men, most of them drawn from the artisan and laboring classes. Sir Oliver discusses first the way in which previous occupations affect the fitness of recruits. Miners may be useful in making trenches, but they become weak in the knees, suffer very frequently from displaced cartilage of the knee-joint, and the feet of those over forty readily give way in pain and thickening of the metatarso-phalangeal joint of the great toe. He then criticises the lack of care and system with which the medical examination of recruits has been made. For instance, examiners have passed men totally blind in one eye from cataract, men who have lost the index finger of the right hand, two fingers of the left hand, or two toes; men who have hernia hemorrhoids, large varicose veins, flat feet, hammer toe, or are the subjects of advanced disease of the heart, lungs or kidneys. The author estimates that the expense incurred by the country and due to the carelessness of medical examiners alone has thus far exceeded $10,000,000.

GERMANY

Deutsche Militärärztliche Zeitschrift

December, 1914.

35 *Sanitary Soldiers and Two-Year Service. Werner.
36 *Displacement of the Testis Beneath the Skin of the Inguinal Region as a Means of Self-Mutilation. Dombrowsky.
37 A Wheeled Litter. Korbasch.
38 Injuries of the Tranverse Ligaments of the Knee. L. Müller.

35. **Sanitary Soldiers and Two-Year Service, by Werner,* is a critical study of the difficulties for efficient service of the hospital corps incident to the short period of service for dismounted troops. In Germany hospital corps are organized from men by detail only after a certain amount of service in the line.

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As the total service amounts to but two years, no opportunity is afforded the medical officers to properly train their enlisted men, even though these men are sent to so-called schools for sanitary soldiers, in connection with the larger military hospitals.

Werner sums up his study with these recommendations:

1. Instruction in all schools for sanitary soldiers is to be limited to four months.

2. Training of sanitary soldiers is to begin in the summer of the first year's service, after six months' service in the line.

3. Sanitary soldiers of mounted organizations may remain one year with the troops in the interest of skill in equitation, because their term of service lasts three years.

4. The sanitary soldiers of the reserve (i. e., discharged after active service) must be recalled at least once during the winter for service-practice in a cazaret.

36. **Displacement of the Testis, by Dombrowsky*, is a contribution by a Russian military surgeon on several cases observed by him in which ectopia testis had been produced artificially by long continued trusses for the purpose of evading military service. In a few real cases of congenital ectopia the diagnosis was easy because of the atrophy of the concerned testicle. Dombrowsky believes this method to be popular among people who do not like military service, because the desired result is obtained without particular pain or inconvenience.

RUSSIA.

Woyenno-Medicinski Journal.

May, 1914.

39 A Case of Supernumerary Auricle. G. A. Kartashewski.
40 "Gynecomastia" in Men. G. B. Berlatzki.
41 A Case of Anterior Luxation of the Knee Joint. M. D. Berewkin.
42 Tuberculosis Found in Necropsies (Esemenow-Alexander Military Hospital, 1894-1911.) G. W. Mishtowt.
43 Venous Cavernous Goitre with Impairment of Circulation and Respiration. W. E. Larionow.
44 Prophylaxis of Epidemic Gastro-Enteritis in the Army. I. I. Krasheninnikow.
45 *A Few Words on the "Convalescent Camps" During the Russo-Japanese War. P. Th. Koltshin.
46 A Case of Dermographism in a Recruit. W. S. Lewtshatkin.
47 Parenchymatous Keratitis. A. B. Tratskin.

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45. **A Few Words on the "Convalescent Camps" During the Russo-Japanese War, by P. Th. Koltshin,* is a brief tactical study which, probably, could have been better labeled: "What shall we do with our slightly wounded and sick?"

After a brief historical review, in which is brought out the well-known fact that in the absence of places for slightly wounded and slightly sick the hospitals are overcrowded and some men reach bases when they should have been returned to the front, the author refers to the present Russian regulation: "The establishment of slightly sick [1] stations begins there where effective evacuation is first organized."

As regards these stations during the Russo-Japanese War, the author saw them only in Harbin, but had no opportunity to observe those at other points. The Harbin unit was established in August, 1904, in tents. Later several units were established in well-built subterranean huts under the direction of the evacuation commission of the rear. There were 18 units, each averaging 300 to 400 men. Thus these commands represented a considerable number of soldiers far removed from their troops. These units or commands demanded the services of many surgeons under the command of a senior who was in charge of all independent camps. There was need of non-medical, non-commissioned officers and privates to conduct the service. The life in the rear proved harmful. There was drunkenness and disorder. This condition of affairs came to the notice of General Kuropatkin who, early in January, 1905, appointed a commission of six surgeons to investigate these camps and to return all fit to the front. The very first visit forced the commission to return about 100 men from one single unit. Somewhat similar conditions prevailed in the other units. Those in charge of the units often protested against the large number of soldiers ordered discharged cured. This proved discouraging, but a high military authority supported the technical commission because of their medical training and knowledge.

Basing on his war experience, the author makes these recommendations:

1. Convalescent units should be established in the zone of the Field Evacuation Commission.

2. To insure economy in personnel as well as efficiency, the camps should be established as branches of hospitals.

[1] The Russian "convalescent camp," or literally "unit of slightly sick," appears to be identical with our station for slightly wounded, and should not be confounded with our convalescent camps.—G. M. B.

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3. Frequent inspection to enable evacuation to the rear, assignment to hospitals when needed, and return to the front, depending on the condition of the patients. (Men have been found running around with temperature after gunshot wounds of the lungs or suffering from aneurysm, in convalescent camps.)

4. Independent units should be established only when absolutely unavoidable.

5. Convalescent camps should be established close to the zone of operations.

JAPAN.

The Sei-I-Kwai Medical Journal.

March 10, 1915.

48 *Non-Operative Treatment of Facial Carbuncle, with Reports of Thirty Cases. B. Toki.

49 *Concerning the Angina of Scarlet Fever. Y. Yajima.

48. **Non-Operative Treatment of Facial Carbuncle, with Reports of Thirty Cases, by B. Toki.* The writer gives as a reason for his report the fact that so few cases of facial carbuncle are reported, and he states that never has he seen such a report of the non-operative cases as he is now giving to the profession.

He then goes into a long discussion of the surgical tratment as compared with the medical treatment, and quoting statistics says he thinks that the surgical treatment is the poorer of the two. He quotes many German and American authors and discusses in detail their opinions and conclusions, also giving some mortality figures. He then speaks of the general medical treatment and of the various local applications and their respective merits and describes in detail the methods used in many of his cases and the results. He claims good results in his cases, and though there is nothing new, apparently, in his methods there seems to be some merit in his contention.

49. **Concerning the Angina of Scarlet Fever, by Y. Yajima.* The author first mentions the different diseases that are followed by angina and states that he became interested in the differentiating of the angina of scarlet from the follicular form in the clinic of throat and nose, and that he wished to be able to make this differential diagnosis, but so many of the cases of the disease have passed the first stage of scarlet when they came into the hospital that he has found it very difficult to get such an opportunity. He then proceeds to give the details of the cases that came under his observation and gives figures

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classifying them into five classes. He also enters into a rather extended discussion of the bacteriology of the diseases and the above mentioned differentiation.

His conclusions are as follows:

1. That the angina of scarlet is a symptom of the first stages of the disease and cannot be viewed as a secondary complication.
2. That it develops mostly in the winter or spring.
3 That it occurs most often in females.
4. That it occurs mostly before puberty (adulthood).
5 That the differentiation between the angina of scarlet and that of angina lacunaris acute, is impossible by means of the throat symptoms only.
6. That the period of fever is from ten days to two weeks.
7. That the most frequent complications are albumin in the urine, inflammation of the cervical glands, middle ear disease, followed next in frequency by inflammation of the kidneys

April 10, 1915.

50 *Concerning Hinarin. H. Sewaki.
51 *Reports of the Actual Use of Spasmin in Sea-Sickness. N. Horiguchi.
52 *Bacteriological Examinations of Laparotomy Wounds. M. Arataki.
53 *Cicatricial Contraction of the Pyloric End of the Stomach Cured by Medical Treatment. T. Nishikawa.

50. **Concerning Hinarin, by H. Sewaki.* This is a detailed study of the use of hinarin as a local anesthetic and analgesic, in which the author first gives a short summary of the properties of the drug and its chemical nature. He then gives facts and figures as to animal experimentation on marmots, rats and white mice, and cites a number of cases in which it was used on humans for anesthetic purposes in surgical work. In all of these cases he seemed to get very good results with no bad effects. He also states that it is of very great value in a number of internal diseases. His summary of the drug an its uses is as follows:

1. Hinarin is soluble in water, alcohol and glycerin but insoluble in chloroform and ether.
2. It does not change its character when dissolved and kept in solution.
3. It possesses anti-parasitic, analgesic and anti-febrile properties.
4. When injected hypodermically it causes loss of sensation in from two to three minutes and it does not form abscesses.

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5. Ordinarily 1 per cent solution is used for local anesthesia, but if more diffuse effect is desired, 3 to 5 per cent is necessary.

6. The period of anesthesia is about two hours.

7. When large doses are injected the posion symptoms are preceded by excitation, followed by paralysis and cessation of respiration and convulsions and death. This has been proven by animal experimentation.

8. In human beings 20 cc. of a 5 per cent solution are given once and there are no symptoms of poisoning. Again, for the purpose of killing the parasite of malaria, 3 grams are dissolved in water and injected, there is no reaction and it is a safe drug for hypodermic use.

9. A fatal dose for a 700 gram marmot is 3 grams.

10. This drug possesses merit in pneumonia, malaria, trypanosomiasis, pulmonary tuberculosis, whooping cough, asthma and sea-sickness.

11. In internal medicine it may be injected alone or with blood serum, or, as in tuberculosis, with tuberculin.

12. As an inhalation a 2 per cent solution, as an application a 10 per cent solution, and as an ointment 5 per cent are used.

51. **Reports of the Actual Use of Spasmin in Sea-Sickness, by N. Horiguchi.* On other occasions similar reports of the use of this drug have appeared in this journal, and this report is, like the previous ones, merely a statement of the cases in which this drug has been used with apparently good results. The writer says that seeing a good chance to use this drug on a voyage in which there were a number of immigrants, he took a large amount of it with him and used it with very good results. He reports many cures and seems to be very sure of the excellent effect of this drug on this very distressing malady. It would seem that the Japanese medical men have had considerable experience with the use of this drug in sea-sickness, but very few if any reports from other sources have been encountered. From this and other statements it appears that spasmin is worthy of a further trial.

52. **Bacteriological Examination of Laparotomy Wounds, by M. Arataki,* is an exhaustive article in which the author first takes up the advances that have been made in the study of the methods of sterilizing the site of operations on the abdomen, and he states that though the methods have been greatly improved in recent times, still perfection has not yet been reached. He then goes on to discuss the various methods for sterilizing

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the skin and quotes much literature and many authors and their experiments. He then discusses their experiments in detail and speaks of the various drugs and combinations of drugs used, especially the iodine mixtures. He then takes up in detail his methods of investigating the subject and gives many tables and figures. The article is very interesting but there are no new points brought out.

53. **Cicatricial Contraction of the Pyloric End of the Stomach Cured by Medical Treatment, by T. Nishikawa.* This is a long article on the above mentioned subject in which the writer goes into the details of the symptoms, signs and somewhat into the pathology of gastric ulcer and its cicatrices. He also takes up in detail the causes of the formation of these cicatrices and quotes several authorities on the subject for his information. He then gives a number of cases of his own in which he claims to have gotten a good result from medical treatment, but he gives no new features in said treatment. He discusses the various test meals but gives no new ideas in this regard. This article is of special interest to the stomatologist, but it is after all only a repetition of many vague statements of other writers on this very interesting and important subject.

UNITED STATES.

The American Journal of Tropical Diseases and Preventive Medicine.

March, 1915.

54 *Observations in Tropical Pathology. H. C. Clark.
55 Chaparro Amargosa in the Treatment of Amœbic Dysentery. P. I. Nixon.
56 Clinical Report of the Anti-Malarial Campaign at Cuyamel. Nathan Barlow.

54. **Observations in Tropical Pathology, by H. C. Clark,* of the Board of Health Laboratories, Ancon, Canal Zone, treats of three frequently silent lesions, gastroduodenal ulcers, gallstones and pancreatitis, and their relative incidence in Panama Canal laborers as disclosed by autopsy.

May, 1915.

57 *Examinations of Arriving Aliens for Uncinariasis at Honolulu. C. M. Fauntleroy.
58 Craigiasis. Nathan Barlow.

57. **Examinations of Arriving Aliens for Uncinariasis at Honolulu, by P. A. Surg. C. M. Fauntleroy, U. S. P. H. S.,* takes up in turn the laboratory equipment and duties of assistants,

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the collection of specimens for examination, the preparation of microscopic specimens, the rules for guidance of assistants, the identification of specimens, the examination of slide preparations and the further examination and treatment of aliens certified for uncinariasis. A specimen blank for clinical data of a case of uncinariasis is appended.

Medical Record.

April 17, 1915.

59 *Gonorrhea Treated with Succinamide of Mercury Administered Intramuscularly. George B. Lake.

60 A New Instrument for Scarifying in the Von Pirquet Cutaneous Tuberculin Test. W. H. Luckett.

59. ***Gonorrhea Treated with Succinamide of Mercury Administered Intramuscularly, by Capt. Geo. B. Lake, U. S. A.,*** gives in detail with description of cases a routine ward treatment which the author worked out for the patients in the venereal ward of the military hospital at Fort Sheridan, Ill. This treatment was designed to shorten the patient's stay in hospital while giving him a reasonable prospect of cure of his malady. It resulted in reducing the average stay in hospital in 32 cases by a saving of three days with a standard for discharge of two consecutive days of entire freedom from urethral discharge.

March 27, 1915.

61 *Results of Wassermann and Luetin Tests at the Naval Prison, Portsmouth, N. H. G. E. Thomas.

62 The Significance of Acids and Alkalies in the Organic World. D. S. Kanstoroom.

61. ***Results of Wassermann and Luetin Tests at the Naval Prison, Portsmouth, N. H., by P. A. Surg. G. E. Thomas, U. S. N.,*** gives the results of Wassermann tests which were made on every prisoner admitted to this prison during 1914, 280 in all. Of the prisoners, 59 gave the history of a primary lesion, and in these cases a luetin test was also made. The results are tabulated in three classes. First, the results of blood tests in all cases committed to prison. In 221 cases was a negative history of a primary lesion; 221 negative tests were obtained; in the 59 cases in which a positive history of a primary lesion was obtained, the results of the Wassermann test were 49 negative and 10 positive. The second table, giving the results of the Wassermann and Luetin tests in cases giving the history of a venereal sore, there were 20 with a positive

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syphilitic who had received treatment. Of these, 15 negative and 5 positive tests resulted both in the Wassermann and Luetin tests; of the 39 cases of negative syphilitic history who had received no treatment, 32 positive Wassermanns and 7 negative Wassermanns, 36 positive Luetins and 3 negative Luetins were recorded. The third table gives the comparative results of the 14 cases which gave a positive Wassermann or Luetin test. Of the 8 positive Luetins, 6 gave a positive Wassermann. The author concludes from this limited experience that the Luetin test when positive is strong evidence of the specific nature of the condition, but that in late cases it is little if any more constant than the Wassermann.

Boston Medical and Surgical Journal

April 15, 1915.

63 Communicable Diseases and Their Relation to the Handling of Food. Edward O. Otis; Allan J. McLaughlin; Harry Linenthal; Cleveland Floyd; Abner Post; T. K. Cary, and Henry Abrahams.

New York Medical Journal.

April 24, 1914.

64 *The Contrast Between the Surgery of the Civil War and That of the Present War. W. W. Keen.

64. **The Contrast Between the Surgery of the Civil War and that of the Present War, by W. W. Keen, Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia,* gives a complete list of the armamentarium of the sixties and then shows the ignorance of bacteriology in those days. In one paragraph he says: "We used only the ordinary marine or toilet sponges. After an operation they were washed in ordinary water to cleanse them of blood and pus and were then used in subsequent operations. If one fell on the floor it was squeezed two or three times in ordinary water and used at once." Again: "When threading a needle, all of us pointed our silk by wetting it with a germ laden saliva and rolling it between germ laden fingers." Practically all of the germs have been discovered since 1881. Fifty years ago amputations were fatal in from 28 to over 82 per cent, while in civil practice today the range does not exceed 5 or 6 per cent. The article is fascinating reading.

Public Health Reports.

April 30, 1915.

65 *Typhus Fever. John F. Anderson.

65. **Typhus Fever, by John F. Anderson, U. S. P. H. S., Director Hygienic Laboratory,* is the abstract of a lecture deliv-

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ered before the Minnesota Pathological Society, March 30, and before the Army Medical School, April 23. It treats of the etiology and the methods of prevention of typhus fever and is accompanied by a bibliography.

May 7, 1915.

66 *Hygiene and Sanitation. Exhibits Shown at the Panama-Pacific International Exposition. J. R. Hurley.

66. **Hygiene and Sanitation. Exhibits Shown at the Panama-Pacific International Exposition, by P. A. Surg. J. R. Hurley, U. S. P. H. S.*, superintendent of hygiene and sanitation, outlines the exhibits on the following subjects: Social or sex hygiene; the tuberculosis problem; hookworm disease, exhibit of the American Medical Association; alcohol and the habit-forming drugs; New York State exhibit in mental hygiene, psychiatry and the care and treatment of the insane; Massachusetts State Lunacy Board exhibit; School Hygiene by State of Pennsylvania; new filtration system and city sewage disposal system by city of Baltimore; Philippine Bureau of Health Exhibit relating to tropical medicine; exhibit on same subject by the Republic of Cuba; infant hygiene shown by U. S. Children's Bureau; National Race Betterment Association's exhibit; Japan's exhibit relating to perfect city water supplies and to military hygiene; United States Public Health Service exhibit; the exhibit of Prudential Insurance Company of America; and that of the Metropolitan Life Insurance Company.

March 12, 1915.

67 *Interstate Migration of Tuberculous Persons. A. D. Foster.

67. **Interstate Migration of Tuberculous Persons, by Surg. A. D. Foster, U. S. P. H. S.*, is a pamphlet treating of the bearing of this subject on the public health, with special reference to the states of North and South Carolina.

Journal of The American Medical Association

April 10, 1915.

68 *The Prevention of Beriberi Among Philippine Scouts. Weston P. Chamberlain.

69 Wounds Received in Battle. Surgical and General Observations Made During Recent Service in Austria. Lloyd Mills.

68. **The Prevention of Beriberi Among Philippine Scouts, by Major Weston P. Chamberlain, U. S. A.* Major Chamberlain was in charge of the beriberi work in Manila from 1910 to 1912, during which time it was eradicated. Most authorities now ac-

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cept the theory that beriberi is the result of a diet deficient in certain substances termed "vitamins," which are essential for the normal functions of the nervous system. There are still some doubters, however, who claim that beriberi is probably an infection, and for this reason he offers the present publication. In this he gives the statistics of the disease as it occurred in the Philippine troops, the rations before and after the disease was attacked by the medical authorities, and also some experimental investigations on fowls are mentioned. The points made are conclusive and fully support the deficiency theory. The disease still prevails among the civilian native population, but the military has been practically exempt since treatment has been instituted, based on this theory. The addition of a proportion of unpolished rice, beans, etc., to the diet has proved a thorough success.

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Reviews

JOHN SHAW BILLINGS: A MEMOIR. By Fielding H. Garrison, M. D. Cloth, 432 pages, with illustrations. 1915. Price, $2.50. G. P. Putnam's Sons, New York and London.

In this careful, critical and yet affectionate memoir Dr. Garrison has rendered great service to the medical literature of the country. He has shown his readers that Dr. Billings was something more than the head of the Surgeon General's library at Washington and the *deus ex machina* of the *Index Catalogue of the Surgeon General's Library and the Index Medicus.* While these are great achievements, Dr. Billings' work as the director of the New York Public Library for seventeen years was monumental. It included the consolidation into one of the great Astor, Tilden, Lenox and other libraries of New York City; the working out of details of management of a library of more than 350,000 volumes, and ultimately to be one of the great libraries of the world. In this work Dr. Billings' marvelous mastery of system and detail and his exceptional administrative ability were shown to the fullest extent.

In the initiation and the carrying out of great enterprises lay Dr. Billings' especial field of usefulness. To him belongs in great measure the credit for the Johns Hopkins Hospital and Medical School, the Peter Bent Brigham Hospital at Harvard Medical School and the Laboratory of Hygiene of the University of Pennsylvania.

All these activities are well described by Dr. Garrison. Beginning with the early days of Dr. Billings, briefly sketched, the author takes up the experience of Lieutenant Billings as an Army medical officer during the Civil War, and gives a vivid impression of the campaign in which he participated from the view point of the staff surgeon. Next he takes up Dr. Billings' official life in Washington, giving an admirably told story of the dry and uninspiring routine of departmental business until Dr. Billings was placed in charge of the library of the Surgeon General's office, which marked the beginning of his career as

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the greatest medical bibliographer of history. The beginnings of the Medical and Surgical History of the War of the Rebellion, the details of the inception and carrying out of the plans for encyclopedic Index Catalogue of the Library of the Surgeon General's office and the Index Medicus are charmingly presented by Dr. Garrison.

To those who anticipate that the memoir of a medical bibliographer written by another bibliographer will be one of the dry-as-dust variety, this book will come as a delightful surprise, for it is permeated with kindliness and personal good will and overflows apparently with a desire to make much of Dr. Billings' other and lovable qualities, without, however, losing sight of his sterling worth and exceptional ability in the special scientific lines along which his life was laid.

DISEASES OF THE BRONCHI, LUNGS AND PLEURA. By Frederick P. Lord, M. D., Visiting Physician to the Massachusetts General Hospital and the Channing Home for Consumptives; Instructor in Clinical Medicine, Harvard Medical School. Cloth, 605 pp. Illustrated with 93 engravings and three colored plates. 1915. Price, $5.00. Lea & Febiger, Philadelphia and New York.

It is most fitting that a work dedicated to Prof. Reginald Heber Fitz should be exact, exhaustive and stimulating. Dr. Lord's book on diseases of the respiratory organs meets these requirements. In its preparation the author has availed himself of the results of long experience in clinical work and in the pathologic laboratory of the Massachusetts General Hospital. His own findings have been carefully compared with those of other clinicians, as evidenced by copious references and footnotes involving most painstaking labor. The work deserves to be commended as a book of reference where the reader may find results of the later discoveries in the field of respiratory diseases.

THE ELEMENTS OF MILITARY HYGIENE—ESPECIALLY ARRANGED FOR OFFICERS AND MEN OF THE LINE. By Major P. M. Ashburn, M. C., U. S. A. New and revised edition. 8 vo.; cloth; 351 pp. 1915. $1.50 net. The Houghton, Mifflin Company. Boston and New York.

In 1909 when the first edition of Major Ashburn's work appeared, THE MILITARY SURGEON, in reviewing it, stated: "This book is the most successful attempt up to the present time, to

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afford officers and men of the line of the Army that knowledge of hygiene necessary to the proper performance of their duties." Since 1909 many text books on military hygiene have appeared, but the volume under consideration as revised and brought up to date, deserves the meed of commendation that was given six years ago. The fact of its adoption as a text book by the Army and to a great extent by the Organized Militia, bears strong testimony as to its excellence. While it is stated that it was specially arranged for officers and men of the line, medical officers of the Regular Establishment, National Guard and Volunteers, will find the book most valuable to them as administrative officers and as teachers.

THE ART OF COMPOUNDING—A TEXT BOOK FOR STUDENTS AND A REFERENCE BOOK FOR PHARMACISTS AT THE PRESCRIPTION COUNTER. By Wilbur L. Scoville, Ph. D., formerly professor of theory and practice of pharmacy in the Massachusetts College of Pharmacy; member of the Eighth Committee of Revision of the United States Pharmacoepoeia and of the Second and Third Committees of Revision of the National Formulary. Fourth edition, revised and enlarged. 8 vo.; 390 pp. with 76 illustrations. 1914. $3.00 net. P. Blakiston's Son & Co., 1012 Walnut street, Philadelphia.

The fourth edition of this standard work shows the increase in scientific interest in the prescription and its compounding, which has developed during the last decade. The author has made good use of the enormous mass of new material and has abstracted from it the essentials. There have been notable changes in the chapters on incompatibilities, sterilization and biologic products. The inclusion of illustrations is also an improvement and for the aid of students 225 prescriptions obtained from State Board Examinations have been added in their classified places.

CANCER, ITS CAUSE AND TREATMENT. By L. Duncan Bulkley, A. M., M. D., Senior Physician to the New York Skin and Cancer Hospital. 8 vo.; cloth; 224 pp. 1915. $1.50 net. Paul B. Hoeber, 67-69 East 59th street, New York, N. Y.

It is regrettable that a dermatologist of so high rank as the author should dim the luster of his name by the presentation of views regarding malignant disease, which are not accepted and which are not likely to be accepted by the medical world at large. The medical aspect of cancer while not negligible, is practically

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of minimal import as compared with the surgical aspect. Of course, the utopian view of the author must be given its full value, but the experience of physicians and surgeons with this almost hopeless disease has not been favorable to the solution of the cancer problem along lines of prevention and cure. Early diagnosis has undoubtedly great value, but science has not yet revealed nor have research workers discovered methods whereby diagnosis can be made sufficiently early to avert surgical interference. The author's conclusion that by exclusion the cause of cancer must be deranged metabolism and his suggestion that the proper treatment is a perfect vegetarian diet excluding even eggs and milk are interesting, but hardly of value in the present state of our knowledge: Research workers are toiling diligently in this particular field and it is to be hoped that their labors eventually may be productive, but we should not allow ourselves to be lulled into any false sense of security by such fallacies as "deranged metabolism" and "vegetarian diet."

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Correspondence

A PARIS LETTER.

MEDICO-SURGICAL STATISTICS OF THE WAR.

April 22, 1915.

The Minister of War has decided to draw up medico-surgical statistics of the Army during the present war analogous to those which were drawn up for the Crimean and Italian wars. These statistics will be drawn up by the central administration of the department by means of statistical bulletins, of which each one will represent a patient discharged from the hospital for any cause whatsoever (death, removal to another hospital or to a convalescent station, etc.). So far as the wounded are concerned, the data to be noted on the statistical bulletin will comprise the place and date of the wound, the interval in hours between the moment of the wound and the first medical dressing, the detailed diagnosis, the nature of the agent producing the wound (ball, shell, shrapnel, sidearm, etc.), the region wounded, the tissue injured, the infection which has followed (gaseous gangrene, tetanus, etc.), the complications (secondary hemorrhage, abscess, etc.), the surgical procedures, the anatomic and functional consequences and the termination.

SUMMARY OF INSTRUCTIONS

For Drawing Up the Present Statistical Bulletin.

1. Each patient LEAVING the hospital is represented by a statistical Bulletin, whatever be the cause of discharge (cure, removal, death, etc.).

GENERAL DATA.

2. It is *indispensable* to fill out carefully the four lines at the head of the Bulletin: name of the patient, age, grade, branch of the service, nationality, and especially date of entry into and exit from the hospital.

3. Three items especially are of CAPITAL *importance*:

(1) Number of the entry registration. This is the number which the patient receives when he is inscribed on the register entry. This number constitutes the basis of the statistics.

(2) *From* what establishment did the soldier *come* when he *entered* the hospital? (Did he come from his army corps or from another hospital? In the latter case, give the *name of this hospital.*)

(3) *To* what establishment was he *sent* when he *left* the hospital? (Was he sent to his depot or to his army corps or to another hospital? In the latter case, give the *name of his hospital;* state whether it is a convalescent hospital, a depot hospital or an asylum for cripples, etc.)

If the soldier has died in hospital the word "died" should be written as an answer to this question and also as an answer to the question further on with regard to the termination of the case.

THE SICK.

4. A *complete* and *precise* diagnosis must be formulated.

Such vague diagnoses as "fever" or "congestion" are not admissable. It is necessary to state the disease which caused the fever and the organ which is congested and why it is so.

Complications should be indicated in detail, especially for typhoid fever. If there is no complication the word "none" should be used.

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THE WOUNDED.

5. *Each one* of the eight questions asked *requires a reply.*

6. The reply should be, according to circumstances, the word "yes" (or a cross), the word "none," other words, an explanation, or even, in case of doubt or ignorance, an interrogation point. All these forms of reply are admissible.

7. *It will not be* TOLERATED that one of the eight questions remains unanswered.

8. The attempt has been made to reduce the amount of writing required. This is why under each of the eight questions the answers which are most frequently elicited, are given. It will be sufficient to write the word "yes" or to make a cross opposite the answer called for in the case, the cross being made at the level of the line so that no error is possible.

9. An answer to the eight questions is required in every case. For the fourth, fifth and seventh questions, a line is reserved for negative replies. Even if there has been *no* serious infection an answer is required in the shape of a cross opposite the words "no serious infection" and similarly if there has been no serious complication and no infirmity resulting from the wound.

10. *Interval between the wound and the first medical dressing.* This means the antiseptic dressing made under the direction of a physician, no matter in what place. It is important to reply in hours for the first twenty-four; after that, reply in days. If this is not known, make an interrogation point.

(Reverse)

Hospital.....

.....No. of Register of ENTRY

(Write this number in large figures and very legibly.)

Surname and Christian Names..... Age.....years

Grade..... Branch of the Service..... Nationality.....

From what military establishment did he *come* when he entered the hosital?.....

To what military establishment was he *sent* when he *left* the hospital?.....

Date of *entry* into hosital.....191.. Date of *leaving hospital*.....191..

Number of days of sojourn.....

1. THE SICK (EXCLUDING WOUNDED).

Date at which the soldier was known to be sick.....191....

DETAILED DIAGNOSIS..... TERMINATION

Complications ..... Cured.....

Was there any antityphoid injection?..... Convalescent.....

At what date.....191.. Discharged.....

Under treatment.....

Dead.....

2. THE WOUNDED.

Place and date of wound.....191.. Interval in hours between wound and first medical dressing.....

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DETAILED DIAGNOSIS.....

First question: Agent which produced the wound.

Accident.

1. Accidental fall.
2. Crushing (of what nature).
3. Freezing.
4. Any other (of what nature).

Military weapon.

1. Ball.
2. Shrapnel.
3. Shell.
4. Sidearm (of what kind).
5. Any other (of what kind.)

Second Question: Region of Wound.

(If there are several *serious* wounds designate the *most serious* by two crosses, the other serious wounds by one cross and do not mention the more trivial wounds.)

Head.

1. Bones of the skull.
2. Brain.
3. Eye or eyes.
4. Nose, nasal fossæ.
5. Buccal cavity.
6. Any other region (which one).
7. Neck (spine excluded).

Spine.

8. Bony tissue.
9. Spinal cord.

Thorax.

10. Pulmonary organs.
11. Other wounds (of what part).

Abdomen.

Penetrating wound involving

12. Liver.
13. Alimentary canal.
14. Bladder.
15. Other organ (which one).
16. Other wound (of what character).
17. Genital organs.
18. Upper arm or shoulder.
19. Forearm or elbow.
20. Hand or wrist.
21. Thigh or buttock.
22. Leg or knee.
23. Foot.

Third Question: Tissues Injured.

1. Skin and muscles *only*.
2. Large vessel (which one).
3. An important nerve (which one).
4. An important gland (which one).
5. A tendon (which one).
6. One or several bones (which one).
7. Other tissue (which).

Fourth Question: Infections.

1. No serious infection.
2. Gaseous gangrene.
3. Purulent infection, pyemia.
4. Diffuse phlegmon.
5. Tetanus.
6. Other *serious* infection (of what nature).

Fifth Question: Complications.

(Mention only serious complications.)

1. No serious complication.
2. Secondary hemorrhage.
3. Abscess; purulent or hematic.

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4. Sloughing.
5. Pulmonary complications.
6. Other serious complications (of what nature).

Sixth Question: Surgical Procedures.
1. Dressings only.
2. Incisions.
3. Extraction of projectiles.
4. Extraction of splinters of bone.
5. Amputation (of what part).
6. Disarticulation (of what joint).
7. Resection (of what).
8. Other operation (of what nature).

Seventh Question: Anatomic and Functional Consequences.
1. No serious consequences.
2. Loss of an eye.
3. Loss of both eyes.
4. Loss of a limb (which one).
5. Other infirmity (of what nature).

Eighth Question: Termination.
1. Cure.
2. Convalescent.
3. Discharged.
4. Under treatment.
5. Dead.

Bulletin filled out ..... 1915, by the undersigned.

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CONGRESS OF MILITARY SURGEONS IN BRUSSELS*

At the suggestion of the chiefs of the field hospitals, a congress of the German military surgeons was held at Brussels in place of the meeting of the German Surgical Society usually held in Berlin; about 1,200 surgeons assembled from all the battlefields, April 1, 1915. Papers were read by prominent surgeons, but for sundry reasons their discussion had to be omitted.

TREATMENT OF HEMORRHAGE

The first paper by Generalarzt Garrè was on the handling of hemorrhage both at the front and later. The stopping of bleeding is one of the most important tasks of the field surgeon. When only the usual tampons and constrictors are used, there may still be enough bleeding from some vessels to result in death. Garrè recommended as the most accurate method of controlling hemorrhage the clamping of bleeders with forceps that are left in place until the dressing is changed. He also spoke of the use of transfusion with physiologic salt solution in cases in which the loss of blood had been great, and stated that stimulus by camphor, caffein, etc., was often more efficacious in impending cardiac failure. Early operation was also advised for skull injuries and for abdominal wounds in which there was danger of internal hemorrhage or injury to stomach or intestines. The earlier the operation in these cases, the better is the prognosis. The necessity for early relief under unfavorable conditions of wounds of the lower urinary apparatus makes the use of the methods used in time of peace impossible and resort to bladder puncture necessary. Every bullet wound is at first, in all probability, not infected, but every grenade wound is; 83 per cent. of all Garrè's especially severe wound infections were due to grenades. This is natural when one considers that these bombs burst on the ground and so carry into the wound dirt as well as

*Reprinted from the Journal of the American Medical Association, May 29, 1915, Berlin Correspondence.

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fragments of infected clothing. Garrè believes that all such wounds should be thoroughly explored and cleaned out with the gloved hand in the field hospital (the advisability of this is questioned by other speakers). In wounds of the extremity, the speaker preferred conservative handling to early operation.

Generaloberarzt Friedrich of Königsberg spoke of his medical experiences and of the terrible condition of affairs that is arising on the eastern Russian battle front. He also recommended the clamping of bleeders in preference to the use of constriction and tampons.

TREATMENT OF TETANUS AND GAS GANGRENE

The treatment of tetanus and gas bacillus infections was discussed by Generalarzt Kümmel of Hamburg. In the Crimean War, tetanus occurred in 1.5 per cent. of cases; in the American Civil War, in 2.5 per cent.; in the Franco-Prussian, in 3.5 per cent., and in the present war in 6.5 per cent. of cases. This shows how thoroughly the French soil is impregnated with the organism causing this disease. The early recognition of this disease is of greatest importance, as it is much more difficult to cure when it is fully developed. Here again, and for the reasons mentioned above, the grenade wounds are the most dangerous. The sooner after the injury the symptoms appear, the worse is the prognosis in spite of the tetanus antitoxin. A combination of antitoxin with salvarsan has been advised, but Kümmel believes that magnesium sulphate is of greater value; the use of narcotics and the continuous water bath must also be considered. The speaker and many other observers recommend the use of a prophylactic dose of antitoxin, especially as little as 20 units will almost certainly suffice to ward off the disease. A most serious infection for which there is a specific cause is the gas bacillus infection. Its rapid course makes early energetic treatment necessary. A patient who is suspected of having such an infection should be carefully examined every two hours, and as soon as the diagnosis is established, the part must be radically opened up; a small incision in the skin and superficial fascia does not suffice, free incision down into the muscles being necessary. According to the work of Professor Franz, toxins are present in the blood even when there is no bacteremia.

TREATMENT OF SKULL INJURIES

Generalarzt Tilmann of Cologne spoke on skull injuries. In scarcely any type of wound is so great a variety of symptoms found as in skull injuries. While penetrating wounds of the skull often result in an early death, glancing wounds are almost as dangerous because of the more extensive injury to the brain that may be present. In penetrating wounds, the damaged brain tissue, etc., comes out of the larger wound of exit of the bullet; how much the brain is damaged depends on whether a fragment of bone is driven into it and on whether any vital centers are injured. The paralyses, etc., that are often present at first may disappear in a few days. When the wounds are first examined in the field where facilities for aseptic operating are not present, conservative treatment is advised; here only the stopping of hemorrhage and the removal of splinters of bone must be considered. Piercing wounds are operated on only after the bullet has been located by means of roentgenography. In diagnosing a meningitis, which often shows itself on the first day, a spinal puncture is often of great assistance. A more frequent form of infection

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following skull wounds is encephalitis, only the serous form of which is curable. Brain abscess is a condition both difficult to diagnose and to treat.

TREATMENT OF CHEST WOUNDS

That chest wounds are not so dangerous as might be expected has been clearly shown in the countless cases in the present war. Many cases of bullet wounds of the lungs not complicated by injury to the ribs or the larger pulmonary vessels heal rapidly. Bleeding into the pleural cavity from small arteries is, as Oberstabsarzt Sauerbruch of Zurich pointed out, rather a rare occurrence, and little blood is generally lost in this way. Much the most serious wounds are those produced by grenades. In summing up these cases, delayed hemorrhage and the rise in temperature due to secondary infection must be considered. The germs that escape into the pleural cavity with the injury to the lung find in the clotted blood an excellent culture medium. Simple drainage of the pleural cavity is generally all that is necessary in these cases, though at times it is necessary to operate on the lung itself. Those wounded through the lungs must be kept absolutely quiet. Generaloberarzt Borchard of Posen pointed out that a prolonged compression of the lung may be dangerous, especially when it is accompanied by thickening; when this is feared, after a suitable interval he makes an incision to permit the escape of the fluid and so relieve the lung.

TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN

In his discussion on penetrating wounds of the abdomen, Generalarzt Körte of Berlin cited many cases. He demonstrated that in this line of work the methods used in times of peace were not practicable, because such wounds are encountered rarely in time of peace and because of the complications presenting themselves in time of war, and on account of the difficulty of transportation. The prognosis in those cases which come up for treatment more than twelve hours after being wounded is bad. When the battle line is in motion, this delay in getting the wounded to a place where they can be cared for is more apt to happen than when the troops are intrenched and have their regularly appointed field hospitals in which it is possible to perform complicated operations. In spite of the great penetrating power of the bullets, piercing of the abdomen without injury to the intestines is rare, though it does occur. In a large series of penetrating wounds of the abdomen, Körte had a mortality of 60 per cent, which would have been even larger if the patients who did not live to get to the rear had been included. Internal hemorrhage and the almost certain injury to the viscera make early surgical treatment the safest method.

Oberstabsarzt Schmieden of Halle stated that the expectant treatment of these cases was all right in theory, but was not possible in time of war, as the necessary conditions such as absolute quiet could not be obtained in time of war. He took the stand that every patient with abdominal injury coming to the skilled surgeon less than twelve hours after being injured should be operated on at once; thus the exact nature of the damage may be ascertained, and if only the liver is injured, the hemorrhage may be stopped, or if the other viscera are injured, whatever is needed may be done. Also experience shows that while the percentage of cases of injury to the stomach or intestines is small, it is even smaller if operation is not performed early. Furthermore, the late complications of

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pregnancy, such as abscess, etc., which are often hard to diagnose, make the mortality even higher. He also stated the mortality was lower in those soldiers who, being in a dangerous place, were on short rations, had an empty gastro-intestinal canal and so were better prepared for intestinal wounds. Generaloberarzt Friedrich of Königsberg believed that wounds of the small intestine are more dangerous than those of the stomach, large intestine or liver. Generalarzt Rehn of Frankfort-on-the-Main made the same observation.

WOUNDS OF THE EXTREMITIES

Generalarzt Payr of Leipzig and Stabsarzt Goldammer treated the voluminous subject of wounds of the extremities. The great economic significance of this class of wounds makes it necessary ot treat them with the greatest care. Here again grenade wounds are found to be the most severe, shrapnel next and bullet wounds least. With grenade wounds, free incision with complete removal of all dirt and pieces of clothing, splinters of bone, etc., is necessary. In spite of this, there is nearly always more or less infection which sometimes gives rise to a septicemia and sometimes to osteomyelitis. In all cases, a very firm dressing is contraindicated, and immobilization is of greatest importance, especially in joint wounds. This keeps the limb quiet and permits the best drainage of the wound. The speaker stated that plaster casts were of value, especially in cases that could not be under constant observation. The use of manufactured splints is possible only in hospitals, in which they are found very convenient, as Professors Rehn, von Eiselsberg and others said.

Marinegeneralarzt Bier of Berlin spoke on the surgery of blood vessels and aneurysms.

The establishment of numerous Roentgen-ray outfits was decided on at the meeting.

CORRECTION

In a letter received by the Editor from Capt. George P. Peed, M. C., U. S. A., on the subject "Correction article for publication," Captain Peed states: "Major Truby and I feel that some explanation should be made by the MILITARY SURGEON showing that we were not responsible for the incorrect use of the use of the word 'shall,' and both of us would be very grateful to you if you would interest yourself and see that we are relieved from the responsibility for the mistakes."

The Editor assumes the responsibility for the use of the word "shall" to which Captain Peed alludes and regrets that the use of the word was not as Captain Peed desired in his excellent article entitled "A Guide to Facilitate the Organization and Administration of Independent Sanitary Commands in the Field," which appeared in the March and April issue of the MILITARY SURGEON.

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News of the Services

ARMY

Leave of absence for two months has been granted Lieut. William E. Hull.

A leave of absence for one month has been granted to Capt. E. G. Bingham.

Mrs. F. M. Usher, mother of Maj. F. M. C. Usher, died recently at Fulton, Ky.

Maj. Bailey K. Ashford spent his month's leave of absence in May in Washington.

Lieut. T. B. McCown, M. R. C., has been granted a leave of absence for three months.

Lieut. Edwin B. Maynard, M. R. C., has been granted leave of absence for three months.

Lieut. H. H. Van Kirk has been ordered to take station at the cavalry camp, San Diego, Cal.

Lieut. Harvard C. Moore, M. R. C., has been ordered to active duty at Vancouver Barracks, Wash.

Leave of absence for two months, effective about July 1, has been granted Lieut. Col. Charles Willcox.

The estate of the late Brig. Gen. William Henry Forwood is appraised at between $50,000 and $60,000.

The resignation of Lieut. Mark Marshall, M. R. C., has been accepted and became effective May 17.

Leave of absence for four months, which took effect May 10, 1915, has been granted Maj. Louis Brechemin, Jr.

The resignation of Lieut. William W. Plummer, M. R. C., was accepted by the President and took effect April 28.

Maj. Frederick F. Russell has been ordered to report to the Governor of the Panama Canal for assignment to duty.

Lieut. Henry R. Weston, M. R. C., has been placed on the active list and ordered for duty to Fort Terry, N. Y.

On expiration of his recent leave of absence Maj. George A. Skinner will report for duty at Fort Strong, Mass.

Lieut. Russell D. Carman, M. R. C., resigned his commission in that corps, his resignation taking effect April 23.

Maj. William L. Kneedler (ret.), and Mrs. Kneedler expect to sail for the Orient on the Pacific Mail Steamship *Korea*, July 3.

Col. and Mrs. William Stephenson are spending six weeks in visits at Fort Leavenworth, Kan., and a trip to the Pacific Coast.

Captain and Mrs. Charles C. Billingslea gave a dinner at Fort Leavenworth, May 3, in honor of Colonel and Mrs. William Stephenson.

Maj. Weston P. Chamberlain contributed an article to the *Journal of*

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the American Medical Association of April 10, on "Prevention of Beriberi among Philippine Scouts by Means of Modifications in the Diet."

Lieut. Col. Henry I. Raymond, after thirty-three years' service, was promoted to a colonelcy on May 9, 1915, vice Col. L. M. Maus (ret.).

Capt. Floyd Kramer was married to Miss Dorothy Bevans, daughter of Major and Mrs. James L. Bevans, at Fort H. G. Wright, N. Y., May 25, 1915.

The resignations of Lieuts. Edward R. McGuire, Fred Robert Zeit and Arthur A. Small, M. R. C., have been accepted and took effect on April 17, 1915.

Leave of absence for one month and five days with permission to apply for extension for one month has been granted Lieut. Harry L. Schurmeier, M. R. C.

Capt. William A. Powell has been granted leave of absence for one month to be effective on his relief from treatment at the Letterman General Hospital.

Lieut. Col. Charles F. Mason, Chief Medical Officer of the Canal Zone, has arrived in Washington on leave and is at the Walter Reed General Hospital.

Lieut. Edwin B. Maynard, M. R. C., after arrival in the United States and the expiration of his leave of absence, will report for duty at Fort Benjamin Harrison, Ind.

Miss Flora Forrest Duval, sister of Maj. Douglas F. Duval, was married to Instructor Thomas Henry Wade of the U. S. Naval Academy, Annapolis, April 15, 1915.

Lieut. Harrison W. Stuckey, M. R. C., after arrival in the United States and the expiration of his leave of absence, will report for duty at Fort Rosecrans, Cal.

Lieut. Charles R. Castlen, after reporting for temporary duty to the commanding officer at Fort Worden, Wash., has been ordered for duty to Fort Bayard, N. Mex.

The resignation of Capt. Henry S. Purnell of his commission as an officer of the Army has been accepted by the President and becomes effective June 1.

The death is announced at Cedartown, Ala., of the father of Major Robert E. Noble, who is on duty in the Office of the Surgeon General, Washington, D. C.

Maj. Lewis T. Hess is to be relieved from his present duties so that he may report in person on August 20, 1915, to the chief of the Division of Militia Affairs for duty.

Capt. Robert M. Culler has been assigned to permanent station at Fort Mackenzie, Wyo., on completion of his temporary duty at Fort Robinson, Neb. The leave of absence of Capt. Culler has been extended one month.

Percival Bolling Banister, son of Col. J. M. Banister (ret.), and William C. Banister, son of Lieut. Col. William B. Banister, have passed the mental examination for admission to the U. S. Military Academy at West Point.

Capt. Adam E. Schlanser has been relieved from duty in the Hawaiian Department and will leave for San Francisco on the transport, which will sail from Manila, P. I., about June 15, and will report for general orders.

James M. Keegan, an ex-United States soldier, for whom the secret service officials have been searching for more than a year, was captured in Baltimore, and after trial on six charges of having falsely represented

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himself to be Capt. Corydon G. Snow, is said to have been sentenced to imprisonment for six years in the Federal Penitentiary, Atlanta, Ga.

Lieut. George B. Worthington, M. R. C., has been ordered to active duty to take effect on notification by the commanding officer of the Signal Service Aviation School, San Diego, Cal., that his services are required.

Maj. Harry L. Gilchrist will be relieved from duty in the Division of Militia Affairs, September 1, and will take station at Fort Grant, Canal Zone, and report to the commanding general for duty with the Coast Defense Unit.

Lieut. Col. Merritte W. Ireland will be relieved from duty in the Philippine Islands about July 15, and will return to the United States, and on arrival will report by telegraph to the Adjutant General of the Army for further orders.

Lieut. Charles Macdonald, M. R. C., Medical Director of the American Red Cross Hospital at Budapest, Hungary, for six months, gave an illustrated lecture on the work of his unit at the Armory of the 23rd Engineers, N. Y. N. G., May 3.

Maj. James M. Phalen, Inspector-Instructor of the Organized Militia of Wisconsin, gave an address before the Outagamie County Medical Society at Appleton, Wis., April 29, on the benefits to the civilian of being inoculated against typhoid fever.

Mr. Edward McCandless Noel, aged sixty, for many years clerk in the Office of the Surgeon-General of the Army, a faithful and efficient public servant, died at the Walter Reed General Hospital, Takoma Park, D. C., April 16, 1915, from nephritis.

Capt. James R. Mount will be relieved from duty in the Hawaiian Department in time to enable him to take transportation to the United States on the transport which sails from Manila September 15, and on arrival, will report to the Adjutant General of the Army for orders.

Capt. Charles C. Demmer, after arrival in the United States and after the expiration of his leave of absence, is ordered to proceed to the Presidio of San Francisco, Cal., and report in person to the commanding officer for duty and by letter to the commanding general Western Department.

Capt. Harry L. Dale, on his relief from duty at Fort Douglass, Ariz., on July 10, will report for duty at Fort William H. Seward, Alaska, and relieve Capt. John S. Lambie, Jr., who will thereupon return to the United States and report to the Adjutant General of the Army for further orders and duty.

A pamphlet on mosquito-borne diseases prepared by Maj. Percy M. Ashburn, issued by the Health Department of the Canal Zone, has been authorized as the basis of instruction for a course on this subject which has been made compulsory in the fifth, sixth, seventh and eighth grades of the white public schools of the Zone.

Maj. Percy M. Ashburn has been relieved from duty in the Panama Canal Zone, to take effect as soon after June 1 as his services can be spared and ordered on expiration of leave of absence to go to the Walter Reed General Hospital, Takoma Park, D. C., and report in person to the commanding general for duty.

Capt. H. C. Michie, Jr., on being relieved from duty at Fort Missoula, Mont., and from further temporary duty with Field Hospital No. 3, Galveston, Texas, on July 10 will report for duty at Fort St. Michael, Alaska, relieving Capt. Thomas L. Ferenbaugh, who on relief, will return to the

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United States and report to the Adjutant General of the Army for further orders and duty.

The annual meeting of the Medical Reserve Corps, U. S. A., Illinois Division, was held in Chicago, May 7, under the presidency of Lieut. Wilhelm L. Baum, and the following officers were elected: President, Lieut. William H. Wilder; Vice-President, Lieut. Daniel A. K. Steele; Secretary and Treasurer, Lieut. John A. Hornsby and Councilors, Lieuts. Gustav Fütterer and James Burry. During the evening Maj. Harry E. Wilkin's Q. M. C., U. S. A., gave an interesting account of his experiences with the American Expeditionary Force at Vera Cruz, and Capt. Will L. Pyles, M. C., U. S. A., gave a talk on the summer camp for officers of the Medical Reserve Corps, which included many valuable suggestions as to uniform, equipment and military etiquette.

Col. L. Mervin Maus, Chief Surgeon of the Eastern Department, Governor's Island, New York Harbor, was retired May 8, 1915, on reaching the age limit. Colonel Maus is an officer of distinguished service, and at the time of his retirement had been in the Medical Corps longer than any other officer of the active list. His service includes field service against Indians, in which he was honorably mentioned in General Orders for special, meritorious and gallant service and was recommended for a Medal of Honor. During the Spanish-American War Colonel Maus was in charge of the examination of the volunteer troops from New York and later was chief surgeon of the 7th Army Corps with duty in the South and in Cuba. He was the first commissioner of public health in the Philippines, organized the Public Board of Health, formulated the health laws and caused to be passed a compulsory law for vaccination against smallpox. He eradicated bubonic plague from Manila and organized the leper colony on the Island of Culion. On his return from the Philippine Islands Colonel Maus was ordered to duty as chief surgeon of the Central Department at Chicago and during this tour of duty inaugurated the now wide-spread propaganda against venereal disease and alcohol. Mrs. Maus has also been prominent in Army life for many years and has been especially active in the various Army relief societies.

NAVY

Asst. Surg. A. E. Man has been detached from the Naval Medical School.

Dr. M. H. Sicard was commissioned Assistant Surgeon, M. R. C., April, 12, 1915.

Surg. J. M. Brister has been transferred from the *Kearsarge* to the *Alabama*.

Med. Dir. Henry G. Beyer (ret.), returned from Europe May 11, on the *Noordam*.

Surg. C. E. Ryder has been ordered to the Naval Training Station, Great Lakes, Ill.

P. A. Surg. H. L. Brown has been detached from the *Alabama* and ordered to the *Chester*.

Mrs. Kennedy, widow of Surg. Stephen Kennedy, of Warrenton Va., is visiting in Washington.

Fleet Surg. F. E. McCullough's article, "The Best Training for the Hospital Corps for the Fleet," which appeared in THE MILITARY SUR-

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GEON for January, was abstracted in the April *Journal of the Royal Naval Medical Service.*

Surg. J. D. Manchester has been ordered for duty to the Naval Hospital at Portsmouth, N. H.

A son was born to P. A. Surgeon and Mrs. Ralph W. McDowell at New York City, May 1, 1915.

Mr. J. Gardner Foster, father of Dr. Thomas Gardner Foster, died in Montgomery, Ala., April 26, 1915.

Med. Dir. John C. Wise has been appointed a member of the Executive Committee of the Society of Manila Bay.

A daughter, Lila Gladius, was born to P. A. Surg. Andrew B. Davidson and wife, at Annapolis, Md., May 16, 1915.

Medical Director and Mrs. George F. Winslow have returned from Florida and are at the Grafton, Washington.

Med. Dir. and Mrs. John C. Boyd gave a dinner in honor of Captain and Mrs. E. W. Eberle, May 14, in Washington.

P. A. Surg. E. U. Reed has been detached from the Marine Recruiting Station at Detroit, Mich., and ordered to the *Maine.*

Walter A. Bloedern, the infant son of P. A. Surg. and Mrs. W. A. Bloedern, died in Washington, D. C., April 24, 1915.

P. A. Surg. D. C. Walton has received orders detaching him from the Naval Academy, June 7, and ordering him to duty on the *Ohio.*

Asst. Surg. S. D. Hart has been detached from the Naval Hospital at Las Animas, Col., and ordered to Washington, D. C., to await orders.

Medical Director and Mrs. Frank Anderson, who have been spending a few months in New York City with their daughter, have returned to Washington.

Surg. R. R. Richardson has been detached from the Naval Training Station, Great Lakes, Ill., and ordered to the Naval Hospital at Las Animas, Col.

Asst. Surg. W. A. Stoops, M. R. C., has been detached from the Naval Hospital, New York, and ordered to temporary duty at the Naval Hospital at Newport, R. I.

Miss Florida Coston Hope, daughter of the late Dr. Shirley Hope, was married to Lieut. John Franklin Swift Norris, U. S. M. C., May 5, 1915, at Portsmouth, Va.

P. A. Surg. F. W. P. Hough has been detached from the Naval Station at Olongapo, P. I., and ordered for treatment to the Naval Hospital at Yokohama, Japan.

P. A. Surg. J. O. Downey has been detached from the Naval Station at Honolulu, H. T., and directed to proceed to Mare Island, Cal., for treatment at the Naval Hospital.

Lieutenant and Mrs. D. McD. LeBreton announce the birth of a daughter, April 28, 1915, at their home in Washington. The child is a granddaughter of Med. Dir. R. C. Persons.

P. A. Surg. T. G. Foster, who was detached from the Disciplinary Barracks at Port Royal, S. C., and ordered to duty on the *Chester,* has been ordered for duty to the Atlantic Reserve Fleet.

P. A. Surg. B. H. Dorsey has reported for duty in the Bureau of Medicine and Surgery, relieving Surg. E. M. Blackwell, who will remain for a time on duty in connection with plans for a naval hospital ship.

For the benefit of the American Ambulance Hospital, Paris, Rear

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Admiral Aaron Ward, on June 8, will open his rose gardens at his country place, Willow Mere, Roslyne, L. I. The rose gardens of Admiral Ward are among the most beautiful in the United States.

Med. Dir. N. J. Blackwood's article, "The Advisability and Practicability of Specialists in the Medical Corps of the Navy," which appeared in the February issue of THE MILITARY SURGEON, received mention in the April issue of the *Journal of the Royal Naval Medical Service.*

Surg. James R. Dykes, who has been in ill health for a long time, was placed on the retired list April 21, 1915, for disability incident to the Service. Surg. Dykes was appointed Assistant Surgeon in 1903 and reached his present rank in September, 1912, and has been on duty at the recruiting station at Atlanta, Ga.

Med. Insp. Sheldon D. Evans, Fleet Surgeon of the U. S. Pacific fleet, has recommended to the Secretary of the Navy that a fleet medical library be established on the flag ship. All books are to be at the disposal of the medical officers of the various ships and freely distributed on receipts. The department has approved the recommendation and all medical officers will now have free access to the latest technical books.

Surg. J. C. Pryor, in a report based on observations on shipboard and in the tropics, states that while white clothing has many advantages, it possesses the disadvantage of affording a target and also of being too easily soiled in active service. He recommends khaki, olive drab or slate-colored easily washable uniform and headdress, and for the enlisted men a straw helmet similar to that used in the British Navy and for the officers a cork helmet.

Entrance Examinations for Medical Corps of U. S. Navy

Examinations for the Medical Corps of the Navy will take place in the cities mentioned below on or about July 6, 1915. Applications, accompanied by the necessary letters or certificates mentioned below, should reach the Bureau of Medicine and Surgery not later than June 26, 1915.

For persons desiring to take these examinations we give the following information as issued by the United States Navy:

A candidate for appointment in the Medical Corps of the Navy must be a citizen of the United States, between 21 and 30 years of age, a graduate of a reputable school of medicine, and must apply for permission to appear before a Board of Medical Examiners. The application *must be in the handwriting of the applicant,* and must be accompanied by the following certificates:

(*a*) Letters or certificates from *two* or more persons of good repute, testifying from personal knowledge to good habits and moral character.

(*b*) A certificate to the effect that the applicant is a citizen of the United States.

(*c*) Certificate of preliminary education: The candidate must submit a certificate of graduation from an accepted high school or an acceptable equivalent.

(*d*) Certificate of medical education: This certificate should give the name of the school and the date of graduation.

(*e*) If the candidate has had hospital service or special educational or professional advantages, certificates to this effect, signed by the proper authorities, should also be forwarded.

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The applicant will save unnecessary correspondence if he will make sure when submitting his application that the qualifications enumerated above are clearly and plainly described in his letters or certificates.

QUALIFICATIONS.

1. The physical qualifications of applicants for appointment as officers in the Medical, Dental, Pay, Chaplain, and Marine Corps are decided upon by an examining board consisting of medical officers of the Navy. The physical examination of candidates will precede the mental and professional. No one found physically disqualified will be examined further. No material physical defect will be waived in any case for any reason.

2. A candidate must declare under oath that he labors under no mental or constitutional disease or weakness, nor any other imperfection or disability which may interfere with the most efficient discharge of the duties of an officer in any climate.

3. Candidates for appointment must be between the following ages:

Corps.	Years of age.
Medical Corps, assistant surgeon	21 to 30
Medical Reserve Corps, assistant surgeon, for subsequent appointment as assistant surgeon, Medical Corps	[1]21 to 29
Medical Reserve Corps, assistant surgeon	22 to 45
Dental Corps, acting assistant dental surgeon	24 to 32
Dental Reserve Corps, assistant dental surgeon, for subsequent appointment as acting assistant dental surgeon, Dental Corps	22 to 30
Dental Reserve Corps, assistant dental surgeon	22 to 45
Pay Corps, assistant paymaster	21 to 26
Marine Corps, second lieutenant	21 to 27
Civil engineer, assistant	23 to 28
Chaplain	21 to 26

[1] The candidate must be under 30 years of age when he completes the course of instruction at the Naval Medical School and is further examined to determine fitness for commission in the Medical Corps.

Applicants will be required to satisfy the examining board regarding age.

4. For all corps herein mentioned the height must not be less than 5 feet 6 inches stripped.

TABLE OF PHYSICAL PROPORTIONS FOR HEIGHT, WEIGHT AND CHEST MEASUREMENT

Height.	Weight.	Chest (mean circumference).	Height.	Weight.	Chest (mean circumference).
Inches.	Pounds.	Inches.	Inches.	Pounds.	Inches.
66	132	33½	70	155	35½
67	134	34	71	162	36
68	141	34½	72	169	36¼
69	148	34¾	73	176	36¾

It is not necessary that the applicant should conform exactly to the figures in the foregoing table, which is given to show what is regarded as a fair standard of physical proportions. A variation not exceeding 15 pounds, not to fall below 132 pounds in weight or 1 inch in the mean chest measurement, below the standard given in the table, is admissible

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when the candidate for appointment is active, has firm muscles, and is evidently vigorous and healthy. A chest expansion of less than 2½ inches is a sufficient cause for the rejection of the applicant.

Any one of the following conditions will be sufficient to cause rejection:

(*a*) Feeble consitution, poor physique, impaired general health.

(*b*) Any disease or deformity, either congenital or acquired, which would impair efficiency, such as weak or deranged intellect, cutaneous diseases, parasites of the skin or its appendages, deformity of the skull, abnormal curvature of the spine, torticollis, inefficiency of joints or limbs, deformity of joints or bones, either congenital or the result of disease or injury, epilepsy, or other convulsions, diseases of the eye, defective vision, color-blindness, impaired hearing or disease of the ear, chronic nasal catarrh, ozena, polypi, great enlargement of the tonsils, impediment of speech, disease of heart or lungs, enlarged abdominal organs, evidences of sclerosis, tumors, hernia, undescended testicle, large varicocele, sarcocele, hydrocele, stricture, fistula, hemorrhoids, varicose veins, disease of the genito-urinary organs, deformed or diseased feet, evidences of intemperance or of the morbid use of drugs, loss of many teeth or teeth generally unsound (teeth properly filled not to be considered unsound). Every applicant must have at least 20 sound teeth, and of these not less than 4 opposed incisors and 4 opposed molars.

(*c*) Any acute disease.

5. Acuteness of vision must be as follows:

For the Medical Corps, Dental Corps, for civil engineers, and for chaplains, not less than 12/20 for each eye, unaided by glasses, and capable of correction by glasses to 20/20.

For the Pay Corps, not less than 15/20 for each eye, unaided by glasses, and capable of correction by glasses to 20/20.

For the Marine Corps, 18/20 for each eye, unaided by glasses, and capable of correction by glasses to 20/20.

For the Medical Reserve Corps and Dental Reserve Corps, for active service only in time of emergency, the physical qualifications for candidates shall conform in general to those for the other corps of the Navy.

FORM OF APPLICATION.

.....

....., 191..

SIR:—I request permission to be examined for an appointment as assistant surgeon in the Medical Reserve Corps, with a view to subsequent examination for appointment in the Medical Corps of the United States Navy.

I was born at ....., and was ..... years of age on the ..... day of ....., 191.., and am a citizen of the United States, residing in ..... county of ....., in the State of ....., and graduated from ..... Medical School in 19..

I forward herewith letters testifying to my moral character, habits, citizenship, preliminary education, and professional qualifications.

Very respectfully,

.....

CHIEF OF THE BUREAU OF NAVIGATION,
Navy Department, Washington, D. C.
Via the SURGEON GENERAL, *U. S. Navy.*

A candidate whose qualifications are satisfactory will receive a formal

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permit to present himself for examination. Examining Boards are usually in session at the following naval stations:

Washington, D. C.	Charleston, S. C.
Boston, Mass.	Great Lakes (Chicago), Ill.
New York, N. Y.	Mare Island, Cal.
Philadelphia, Pa.	Puget Sound, Wash.
Norfolk, Va.	

These Boards conduct the preliminary examination. After examination the successful candidates are appointed Assistant Surgeons in the Medical Reserve Corps, and if so recommended are subsequently assigned to duty, with full pay and allowances, in attendance upon a course of instruction at the Naval Medical School, Washington, D. C. This course begins annually about October 1st and lasts about six months. Upon the completion thereof the student officers are given their final examination and, if found qualified, are commissioned as Assistant Surgeons in the regular Medical Corps of the Navy.

The entrance examination for the Medical Corps thus consists of two parts: the *preliminary,* prior to appointment in the Reserve Corps, and the *final,* after assignment to duty at the Naval Medical School.

THE EXAMINATION.

Preliminary (Prior to Appointment in the Reserve Corps).

When a candidate presents himself for examination he must bring with him the testimonials as to character and professional fitness, diplomas, and certificate that he is a citizen of the United States, those forwarded with his application having been returned to him for this purpose.

PHYSICAL EXAMINATION.

The physical examination is thorough and the candidate is required to certify, on oath, that he is free from all mental, physical, and constitutional defects.

Acuteness of vision, 12/20 for each eye, unaided by glasses, but capable of correction by aid of lenses to 20/20, is obligatory. Color perception must be normal and the teeth good.

If the candidate is found to be physically disqualified, his examination is concluded; if found to be physically qualified, his examination is continued, as follows:

PROFESSIONAL EXAMINATION.

1. Letter to the Board, giving a brief statement of the candidate's general and professional education.

2. Written examination in (*a*) anatomy, (*b*) physiology, (*c*) materia medica and therapeutics, (*d*) general medicine, (*e*) general surgery, and (*f*) obstetrics.

The professional part of the preliminary examination will be conducted by local or supervisory boards, but marks will be assigned by a central board of not less than three medical officers, which will convene at the Naval Medical School, Washington, D. C. Applicants who attain a general average of not less than 80 per cent in the preliminary examinations, and are deemed otherwise acceptable will receive an appointment in the Medical Reserve Corps. The applicants will be selected for assignment in attendance upon the course of instruction at the Naval

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Medical School in the order of merit as determined at the preliminary professional examination.

The Board will give careful consideration to composition and spelling as shown in the papers submitted in the written examination, and to the statements contained in the letters and certificates regarding the candidate's preliminary and professional education.

No allowances will be made for the expenses of persons appearing for the preliminary examination.

FINAL (NAVAL MEDICAL SCHOOL).

PROFESSIONAL EXAMINATION.

The final examination will be on the subjects embraced in the course of instruction, such as naval and general hygiene, naval and operative surgery, tropical medicine and pathology, medical zoology, practical chemistry, bacteriology and serology, ophthalmology, Naval Regulations, Hospital Corps drills, and duties of the medical officer afloat and ashore.

Student officers who attain a general average of at least 80 per cent will receive certificates of graduation from the school.

Members of each class, upon graduating from the Naval Medical School, will be commissioned in the order of merit as determined upon final examination, but not in excess of the number of vacancies in the Medical Corps.

Since no officer can be commissioned in the Medical Corps who is over 30 years of age, permits will not be issued tto applicants who can not complete the prescribed course at the Naval Medical School while within the age limit.

During the course of instruction the character, habits, and general deportment of student officers are closely observed. If it appears during a candidate's attendance at the school that his appointment in the Medical Corps would be undesirable, he will be relieved from active duty and his discharge from the service recommended.

PHYSICAL EXAMINATION.

The final physical examination is thorough in character. No person will receive an appointment whose physical condition may indicate the possibility of early retirement for disability.

The Boards are required, under oath, to report on the physical, mental, moral, and professional qualifications of the candidates.

A successful candidate upon completion of his final examination will be notified of the result by the President of the Board.

A candidate failing in the preliminary examination may apply for a reëxamination, but such reëxamination will not be granted until after a period of six months has elapsed since the last examination.

No candidate will be given the course at the Naval Medical School more than once.

A candidate who is appointed in the Reserve Corps before the course of instruction begins may be assigned to active duty at some naval station, with full pay and allowances, pending his detail to the Naval Medical Schools should such services be necessary.

The tenure of office in the Medical Corps of the Navy is for life, unless sooner terminated by removal, resignation, disability, or other casualty.

Officers of the regular Medical Corps of the Navy are retired from

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active service at the age of 62 years, and when so retired (or when retired from active service for disability or other casualty contracted in line of duty before that age) receive an annual pay for life amounting to three-fourths of the (highest) pay of their grade at the time of retirement.

If, upon examination for promotion, an officer is found disqualified by reason of physical disability incurred in line of duty, he is retired on an annual pay amounting to three-fourths that of the grade to which he is due for promotion.

When any officer in the Medical Corps of the Navy has been 30 years in the service, he may, upon his own application, in the discretion of the President, be retired from active service and placed upon the retired list with an annual pay for life amounting to three-fourths of the highest pay of his grade at the time of retirement.

PAY AND ALLOWANCE TABLE.

Rank and Length of Service.	Pay per annum on shore.	Allowances per annum for quarters.†	Total pay per annum on shore.	Pay per annum at sea.
Assistant Surgeons,* rank of Lieutenant (junior grade)	$2,000	$ 432	$2,432	$2,200
Passed Asst. Surgeons, rank of Lieutenant.	2,400	576	2,976	2,640
After 5 years in service	2,640	576	3,216	2,904
After 10 years in service	2,880	576	3,456	3,168
After 15 years in service	3,120	576	3,696	3,432
Surgeons, rank of Lieutenant Commander:				
After 5 years in service	3,300	720	4,020	3,630
After 10 years in service	3,600	720	4,320	3,960
After 15 years in service	3,900	720	4,620	4,200
After 20 years in service	4,000	720	4,720	4,400
Medical Inspectors, rank of Commander:				
After 15 years in service	4,500	864	5,364	4,950
Medical Directors, rank of Captain:				
After 15 years in service	5,000	1,008	6,008	5,500
Surgeon General, rank of Rear Admiral	6,000	1,152	7,152	6,600

* Assistant Surgeons, Medical Reserve Corps, *while on active duty,* receive the same pay and allowances as Assistant Surgeons, U. S. Navy.

† Both within and (on shore duty) beyond the continental limits of the United States, but only when quarters are not furnished by the Government.

NOTE.—There are also liberal allowances for fuel and light on shore at home and beyond the continental limits of the United States, the amount varying according to rank, season, and the latitude of the station at which the officer is serving.

Immediately upon official notification of the death from wounds or disease, not the result of his own misconduct, of any officer of the Navy, the Paymaster General of the Navy shall cause to be paid to the widow, and if no widow, to the children, and if there be no children, to any other dependent relative of such officer previously designated by him, an amount equal to six months' pay at the rate of pay received by such officer at the date of his death, less $75 to defray expenses of interment, and the residue, if any, of the amount reserved shall be paid subsequently [illegible] ated person.

When tra[illegible] United States, under orders, officers of the N[illegible] to defray the expenses incident thereto, and [illegible] Government conveyance at sea or outside the

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continental limits of the United States such officers are allowed actual expenses, estimated on a liberal basis and in accord with the position of an officer, both as regard admissible items of expense and the cost of such items.

For every five years service the pay of officers is increased 10 per cent (though not to exceed 40 per cent), calculated on the annual base pay of their grade, as shown in the appended table; but the pay of medical director is limited to $5,000, that of medical inspector to $4,500, and that of surgeon to $4,000.

When an officer goes to sea or leaves the continental limits of the United States under assignment to stations or for the performance of other duties beyond the seas, his pay is increased 10 per cent, and this increase is calculated upon the pay, including increases for length of service, which said officer may be receiving at the time of entering upon such duty or to which he may succeed by virtue of promotion or length of service during the performance of such duty, as shown in the appended table. This increase for sea duty or service beyond the continental limits of the United States does not fall under the statutory restrictions above mentioned, which control the increase of pay for length of service in the grades above passed assistant surgeon, and the operation of this benefit is shown in the fourth column of the appended table.

Assistant surgeons are examined for promotion at the expiration of three years' service, and, if successful, become passed assistant surgeons. Promotions to the higher grades are made in the order of seniority to fill vacancies as they are created (by resignation, retirement, or death), and for each promotion a physical and professional examination is required by law.

For further information address the Surgeon General, U. S. Navy, Navy Department, Washington, D. C.

PUBLIC HEALTH SERVICE

Surg. J. S. Boggess has been granted a leave of absence of thirty days.

Sen. Surg. J. C. Perry has been ordered to report to the Bureau for temporary duty.

Surg. J. A. Nydegger has been granted three months' leave of absence with permission to go beyond the sea.

Sen. Surg. Fairfax Irwin has been granted two months' leave of absence with permission to visit the West Indies.

Asst. Surg. M. Victor Safford has been ordered to inspect the medical examination of arriving aliens at New Bedford, Mass.

Asst. Surg. Carl Michel, on relief from duty in pellagra investigation in Jackson, Miss., was ordered to duty at Ellis Island, N. Y.

P. A. Surg. G. L. Collins has reported at the Bureau, Washington, D. C., in connection with the study of industrial sanitation.

P. A. Surg. R. A. Herring has been detailed to make malarial surveys and to collect data at various points in the Southern States.

Surg. J. W. Schereschewsky visited Pittsburgh last month to organize the work of investigations of occupational diseases in that city.

Surg. George W. McCoy has been detailed to represent the Service at San Francisco, Cal., and to present papers relating to research work on

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leprosy before the American Society of Tropical Medicine, June 14-17. and before the American Medical Association, June 21-25.

Surg. George B. Young represented the Service at the meeting of the Virginia Public Health Association at Lexington, May 11 and 12.

P. A. Surg. E. H. Sweet was relieved from further duty in the Hygienic Laboratory April 30 and reported at the Bureau for temporary duty.

Surg. J. B. Stoner has been relieved from duty at the Marine Hospital at Pittsburgh, Pa., and placed in charge of the Marine Hospital at Wilmington, N. C.

P. A. Surg. Robert Olesen, on his relief from duty at the Bureau, Washington, D. C., assumed temporary charge of the Marine Hospital at Pittsburgh, Pa.

A. A. Surg. B. C. Tarbell has been ordered, on request of the Immigration Service, to go to points in the vicinity of Naco, Ariz., to examine detained aliens.

P. A. Surg. J. R. Ridlon represented the Service at the meeting of the Georgia Association of State, Municipal and County Boards of Health at Macon, April 20.

Surg. M. H. Foster represented the Service at the meeting of the American Association for Promoting Hygiene and Public Baths in New York City, May 11.

Asst. Surg. M. W. Jones has been ordered to go to various points in California, Oregon and Washington relative to physical examinations for the U. S. Coast Guard.

Asst. Surg. J. B. Laughlin has been engaged in field investigations of rural sanitation in Anne Arundel County, Md., Orange County, N. C., and Walker County, Ala.

Surg. Carroll Fox went by order to Lapeer, Mich., April 21, to present an address on communicable diseases in connection with the Good Health Week held in that town.

Asst. Surg. R. E. Wynne, on his relief from duty at the Marine Hospital, Chicago, Ill., was ordered for temporary duty to the Hygienic Laboratory, Washington, D. C.

A. A. Surg. Charles A. Bailey accompanied the officers of the Immigration Service from West St. John, N. B., to Quebec, P. Q., for duty in the medical examination of aliens.

Surg. E. K. Sprague delivered addresses on public health subjects at Bangor, Lewiston and Portland, Me., May 17-19, under the auspices of the Maine Anti-tuberculosis Association.

Dr. L. L. Williams, Jr., has been commissioned assistant surgeon and ordered to report to the commanding officer of the U. S. Coast Guard Cutter *Onondaga* at Norfolk, Va., for duty.

Dr. Warren F. Fox has been commissioned assistant surgeon and ordered to report to the medical officer in charge of the Marine Hospital at San Francisco, Cal., for duty and assignment to quarters.

Asst. Surg. J. G. Townsend, on his relief from duty at the Marine Hospital at Louisville, Ky., reported to the commanding of the U. S. Coast Guard Cutter *Bear* for the summer cruise in Alaskan waters.

Asst. Surg. H. C. Yarbrough was relieved from duty at the Hygienic Laboratory and reported to Surg. L. L. Lumsden for duty in field investigation of rural sanitation in Wilson County, Kan., stopping en route at

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Rosedale, Kan., for conference with the state health officer and to attend the School for Health Officers of the State of Kansas.

Asst. Surg. Gen. Henry R. Carter has recently visited various points in Alabama and South Carolina in continuance of the investigations of the influence of impounded waters on the health of the community.

P. A. Surg. E. Krulish, on request of the Commissioner of Education of the Department of the Interior, has been ordered to go to Washington for conference relative to the sanitary relief of the natives of Alaska.

Asst. Surg. Howard F. Smith has been relieved from duty at the immigration station at Ellis Island, N. Y., and ordered to Cincinnati for duty in connection with investigations of the pollution of navigable waters.

P. A. Surg. Lawrence Kolb has been ordered to visit various points in Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama for duty relative to physical examination for U. S. Coast Guard.

Surg. J. O. Cobb has been ordered to visit, or to detail a junior officer to visit, various points in Wisconsin, Michigan, Minnesota, Ohio, Pennsylvania and Kentucky relative to physical examinations for U. S. Coast Guard.

Asst. Surg. W. L. Treadway has been directed to rejoin his station at Ellis Island, N. Y., stopping en route at Faribault, Minn., and Milwaukee, Wis., to visit schools for the feeble minded and observe the methods in use.

P. A. Surg. E. H. Mullan was the representative of the Service at the meeting of the National Association for the Study of Epilepsy and the American Medico-Psychological Association at Fort Monroe, Va., May 10 to 14.

P. A. Surg, J. M. Gillespie, on his relief from duty at Ellis Island, N. Y., and special temporary duty at New Orleans, La., reported to the medical officer in charge of the Marine Hospital, Chicago, for duty and assignment to quarters.

Surg. Ed. Francis's article on "A Practical Method of Embalming on Shipboard," which appeared in THE MILITARY SURGEON for February, appears in an extended abstract in the *Journal of the Royal Naval Medical Service.*

Surg. W. M. Glover, who was relieved from duty in charge of the Angel Island Quarantine Station, Cal., by Surg. William A. Korn, thereupon reported in Washington, D. C., to the Director of the Hygienic Laboratory for temporary duty.

Asst. Surg. K. E. Miller, on his relief from duty on the U. S. Coast Guard Cutter *Onondaga,* reported to Surg. L. L. Lumsden, Washington, D. C., and thence was ordered to Wilson County, Kan., for duty in field investigations of rural sanitation.

Dr. Richard L. DeSaussure has been commissioned assistant surgeon and ordered to report to Surg. L. L. Lumsden, Washington, D. C., and then to go to Anne Arundel County, Md., and Wilson County, Kan., for duty in field investigations of rural sanitation.

Asst. Surg. Gen. L. E. Cofer, after inspecting the quarantine plant recently installed at Providence, R. I., went to Boston in connection with quarantine matters, and on his return stopped at Ellis Island, N. Y., for the inspection of certain matters connected with the examination of immigrants.

P. A. Surg. Paul Preble has been engaged in the investigation of the

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typhoid fever situation in Florence, Ala., after which he went to Clinton and other places in New Jersey and adjoining states to make a sanitary reconnaissance of the watershed of rivers flowing through or bordering on New Jersey.

Dr. David J. Prather has been commissioned assistant surgeon and ordered to report to the Hygienic Laboratory for temporary duty, and after preliminary instruction to proceed to Anne Arundel County, Md., Orange County, N. C., and Walker County, Ala., for duty in field investigations of rural sanitation.

Surg. L. L. Lumsden has been ordered to go to Anne Arundel County, Md., Grange County, N. C., and Walker County, Ala., to supervise field investigations of rural sanitation. He was also detailed to represent the Service at the meeting of the Medical and Chirugical Faculty of Maryland, at Baltimore, April 28.

P. A. Surg. W. H. Frost reported at the Bureau, Washington, D. C., for conference relative to investigation of the pollution of navigable streams. He was then, on request of the local immigration officer at Cincinnati, Ohio, ordered to make examinations of detained aliens and certify as to their physical condition.

Surg. John McMullen reported to the Bureau for conference in the matter of the extension of anti-trachoma work and later went to Baltimore for conference in reference to the investigation of trachoma and to Wheeling and Charleston, W. Va., for conference with the State authorities relative to the location of a trachoma hospital in that state.

Asst. Surg. E. W. Scott, on his relief from duty in charge of the Marine Hospital at Wilmington, N. C., reported to the medical officer in charge of the Marine hospital at Stapleton, N. Y., for duty and assignment to quarters. He then went to various points in New York, Connecticut, Rhode Island and Massachusetts and Maine relative to physical examinations for U. S. Coast Guard.

Sen. Surg. J. H. White represented the Service at the meeting of the Tennessee State Medical Association at Nashville April 13-15. He was also detailed to deliver an address before the Oklahoma State Medical Association at Muskogee, Okla., April 26-30, on "Municipality and Its Relation to Public Health." He was then ordered to go to Dixon, Tenn., to investigate a supposed case of leprosy.

Asst. Surg. C. H. Waring has been ordered to go from time to time to the Rankin State Farm, Greenfield, Miss., to inspect the methods and system of the study of pallagra, and to co-operate in experiments made regarding the etiology of the disease. He has also been directed to visit points in the vicinity of Jackson, Miss., for observation of inmates of orphanages in which pallagra investigations are being conducted.

Surg. R. H. von Ezdorf represented the Service at the meeting of the Medical Association of the State of Alabama in Birmingham, April 20-21, and at the meeting of the First District Medical Society of Arkansas at Janesboro, April 27. He then went to Morgan City, La., to inspect the schooner Colwell, which arrived at that port having on board suspicious cases of fever. At the meeting of the Southern Sociological Congress at Houston, Tex., May 8-11, Surg. von Ezdorf represented the Service.

Asst. Surg. Gen. W. C. Rucker has been directed to visit Richmond, Va., and Baltimore, Md., to confer with the state health authorities rela-

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tive to inter-state quarantine regulations. He was also directed to visit New Orleans for the purpose of inspecting service measures in force for the elimination of plague infection and then to go to Fort Worth, Tex., deliver an address before the State Medical Society and then confer with health officers as to measures for the prevention of the introduction of plague infection. He was then instructed to go to Columbia, S. C., and confer with the health officer of the state relative to the proposed draft of inter-state quarantine regulations.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 "B" street, S. E., Washington, D. C., and at the Marine Hospitals of Boston, Mass., New York, N. Y., Chicago, Ill., St. Louis, Mo., Louisville, Ky., New Orleans, La., and San Francisco, Cal., on Monday, June 21, 1915, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must not be less than 5 feet 4 inches, nor more than 6 feet 2 inches in height, with relatively corresponding weights.

The following is the usual order of the examinations: 1, Physical; 2, Oral: 3, Written; 4, Clinical.

In addition to the physical examination candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon generals $4,000 a year. When quarters are not provided, commutation at the rate of $30, $40 and $50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

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The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners address "Surgeon-General, Public Health Service, Washington, D. C."

NATIONAL GUARD

Lieut. Harry A. Haze, M. C., Mich. N. G., assigned to the Artillery, has resigned.

Lieut. James E. Morrison, M. C., Pa. N. G., assigned First Infantry, resigned January 14.

Major Paul W. Tappan, M. C., Ohio N. G., Dayton, assigned to the Third Infantry, has resigned.

Major Howard E. Ashbury, M. C., Md. N. G., Baltimore, assigned Fourth Infantry, has resigned.

Lieut. E. W. Loomis, M. C., Tex. N. G., has been assigned to duty with Battery A, Tex. N. G., Dallas.

Dr. Robert Malcolm has been commissioned first lieutenant M. C., N. Y. N. G., and assigned to the Tenth Infantry.

Dr. Thomas D'A. Lucas has been commissioned first lieutenant M. C., N. Y. N. G., and assigned to the Seventh Infantry.

Capt. F. M. Gardner, M. C., Ind. N. G., has been commissioned Major, M. C., and assigned to duty with the First Infantry.

An Ambulance Company has been organized at Fort Worth under the command of Major John J. O'Reilley, M. C., Tex. N. G.

Under the direction of Lieut. Col. Joseph A. Hall, Chief Surgeon Ohio N. G., a sanitary corps is being organized at Akron.

Dr. W. H. Caine, Stillwater, has been commissioned Lieutenant, M. C., Minn. N. G., and assigned to duty with the Second Battalion.

Maj. W. A. Jolley, M. C., Colo. N. G., Boulder, has gone to Serbia in the service of the American Red Cross, as assistant director.

Maj. H. H. Snively, M. C., Ohio N. G., has reached Kiev, Russia, where he assumes command of the American Red Cross Hospital.

Col. George P. Lingenfelter, Surgeon General, Colo. N. G., delivered an address recently in Denver on "The Care of Contagious Diseases."

Maj. J. Talmage Wyckoff, chief surgeon of the First Brigade, N. J. N. G., accompanied the Field and Staff of the brigade on its test ride May 7 to 9.

Captain A. F. Wilhelmy, M. C., Ill. N. G., and First Lieut., M. R. C., U. S. A., has resigned from the Medical Corps of the National Guard, taking effect May 1.

Major Thomas V. Fryar, M. C., Tex. N. G., Dallas, has been appointed Chief Surgeon of the State under the reorganization of the Medical Department.

Major Dunlap P. Penhallow, M. C., Mass. V. M., Boston, has started for Europe, where he will serve three months in France with the American Red Cross.

Maj. E. A. Hamilton, M. C., Ohio N. G., Columbus, sailed for Europe April 20, where he will take charge of the American Red Cross Hospital at Gleiwitz, Silesia.

Lieut. Earl B. Downer, M. C., Ohio N. G., Columbus, is now on duty at the American Red Cross Hospital, Belgrade, Serbia. He reports that

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the ravages of typhus at Gavgalia, where the conditions were so bad that the unit was ordered to Belgrade.

The official inspection of the Ambulance Company, N. J. N. G., at Red Bank, was made by Maj. L. T. Hess, M. C., U. S. A., inspector-instructor for New Jersey, May 11.

Maj. C. S. Moody, M. C., Idaho N. G., residing at Hope, was a delegate at the conference of National Guard officers of Northern Idaho, held at Lewiston last month.

Major Luther H. Reichelderfer, M. C., D. C. N. G., delivered an address on "Military Surgery" recently under the auspices of the National Society of Keep Wells.

Lieut. Thomas F. Jackson, M. C., Pa. N. G., has been commissioned with rank from December 16, 1914, and assigned to the Fifth Infantry, vice Lieut. D. F. Winn, resigned.

Capt. Floyd V. Miller, M. C., Ohio N. G., Delaware, has been placed in charge of the sanitary corps of the Fourth Infantry during the absence of Maj. E. A. Hamilton in Europe.

Maj. William J. Crookston, M. C., Pa. N. G., is in charge of the American Red Cross Hospital at Budapest, Hungary, an institution with accommodation for 220 wounded men.

Lieut. T. Lyle Hazlett, M. C., Pa. N. G., on duty at Kief, Russia, has reached there after a long journey by way of Archangel, which included a trip by reindeer sledges of 43 miles.

Maj. A. C. Fort, M. C., Ga. N. G., delivered an address before the annual meeting of municipal, county and state health officers at Atlanta, last month on "Facts—How Can We Use Them."

The annual muster and inspection of the Twelfth Infantry, N. Y. N. G., shows that the medical department of the regiment under Maj. Walter C. Montgomery has attained a high degree of efficiency.

At the review of the Second Field Artillery, N. Y. N. G., May 10, the Hospital Corps Detachment, under Maj. Stratford F. Corbett, M. C., gave an exhibition drill in field hospital work and first aid.

Col. D. S. Fairchild, Jr., M. C., Ia. N. G., Clinton, entertained the members of the Iowa State Surgical Society at its quarterly meeting in Clinton, April 24, at a luncheon at the La Fayette Inn.

Lieut. G. A. Harris, M. C., Wyo. N. G., after attending the Army Service School course at Ft. Leavenworth, Kan., starts for Europe this month in the service of the American Red Cross in France.

Lieut. John O. Rush, M. C., Ala. N. G., has been placed in command of the sanitary detachment attached to First Infantry, Ala. N. G., Mobile, succeeding Capt. William A. Padgett, relieved at his own request.

The First Field Hospital and Third Ambulance Company, N. Y. N. G., will have their annual tour of duty at Fishkill Plains, N. Y., July 17 to 26, and the Second Field Hospital and Second Ambulance Company at the same place, from July 27 to August 5.

The good effects of the rigid physical examination now employed in the National Guard were shown last month in Massachusetts, when six officers who had been duly elected and appointed were conditioned by the medical examining board for ninety days.

Maj. William G. Bissell, M. C., N. Y. N. G., bacteriologist of the Buffalo Health Department, will deliver a series of lectures on "Pre-

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ventive Medicine and Hygiene" at the Long Island College Hospital, Brooklyn, during the present session.

The Adjutant General has issued an order for the attendance of the following officers of the medical corps of the National Guard of Nebraska, at Fort D. A. Russell, Wyoming, May 31 to June 5: Major Clifford W. Walden, Beatrice; Captains Herbert H. Smith, Fremont, and Joseph R. Cameron, Bennett; and Lieutenants George W. Pugsley, Omaha; Lazelle B. Sturdevant, Lincoln; George H. Bentz, Fairfield; Philip H. Bartholomew, Blue Hill; Rex B. Stratton, Bruning; Warren T. Hurst, Ralph S. Hart, Schuyler; James C. Anderson, Holdrege, and Claude P. Fordyce, Grand Island.

Field Hospital No. 2, Ill. N. G., was mustered into the service May 10, 1915, by the Surgeon General, Lieut. Col. Jacob Frank, with an enlisted personnel of 43. Maj. Gustavus M. Blech, M. C., is in command of the Field Hospital and Capt. McKinley is executive officer. An armory has been secured for the use of this organization and Field Hospital No. 1 at 1617 South Michigan avenue, Chicago, and recruiting is in active progress. Up to the present time 48 men have been enlisted, and the organization made its first public appearance, and that a very creditable one, at the Memorial Day parade, May 31.

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General News

Instruction Camps for Sanitary Troops of the Organized Militia and Officers of the Medical Reserve Corps, United States Army, Inactive List.

The War Department has completed all arrangements for conducting a very thorough and complete course of instruction during the coming summer for the sanitary troops of the Organized Militia. In conducting these camps the instruction work will be divided into two classes: First, camps of instruction or schools for officers and noncommissioned officers of the Organized Militia; second, joint camps of instruction for field hospital companies and ambulance companies. In connection with the camps of instruction arrangements have also been made for giving the officers of the Medical Reserve Corps, United States Army, inactive list, the benefit of this work, the plan being to conduct the camp for a period of two weeks, the first week for the Militia officers, the second week for officers of the Medical Reserve Corps, who at the present time number nearly 1,400 officers, all of whom are subject to call in time of need, and few of whom have ever had any field experience. For these camps a schedule of instruction, including both theoretical and practical work, has been devised, which will begin Monday morning and terminate on the afternoon of the following Saturday.

It is contemplated to provide at these camps a complete field hospital, ambulance company, regimental infirmary and such other equipment as will be necessary to offer every facility for giving a thorough and practical course of instruction. The new equipment which has been adopted by the General Staff for the sanitary troops will also be used at these camps, thereby giving all who attend an opportunity to familiarize themselves with it.

The locations of these camps, with dates, States assigned to each, etc., will be as follows:

Fort Sam Houston, Texas, May 24-29, for Militia officers and noncommissioned officers of New Mexico, Oklahoma, Arkansas, Louisiana and Texas, and June 7-12, for officers, Medical Reserve Corps, inactive list.

Fort Oglethorpe, Georgia, June 7-12, for Militia officers and noncommissioned officers of Kentucky, Tennessee, Mississippi, Alabama, North Carolina, South Carolina, Georgia and Florida, and for officers Medical Reserve Corps, inactive list, same dates.

Tobyhanna, Pennsylvania, June 21-26, for Militia officers and noncommissioned officers of the New England States, New York, New Jersey, Pennsylvania, Delaware, Virginia, West Virginia, Maryland

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and the District of Columbia, and June 28 to July 3, for officers Medical Reserve Corps, inactive list.

Fort D. A. Russell, Wyoming, May 31 to June 5, for Militia officers and non-commissioned officers of Idaho, Montana, Wyoming, Utah, Colorado, South Dakota, Nebraska and Kansas, and for officers Medical Reserve Corps, inactive list, same dates.

Sparta, Wisconsin, July 5-10, for Militia officers and non-commissioned officers of North Dakota, Wisconsin, Iowa, Missouri, Minnesota, Illinois, Indiana, Ohio and Michigan, and July 12-17 for officers Medical Reserve Corps, United States Army, inactive list.

The Presidio of Monterey, California, June 7-12, for officers and non-commissioned officers of Washington, Oregon, California and Arizona, and for officers Medical Reserve Corps, inactive list, same dates.

At the joint camps of instruction which will be conducted during the months of July and August at Tobyhanna, Pa., Sparta, Wis., San Antonio, Tex., Fort D. A. Russell, Wyo., and the Presidio of Monterey, Cal., arrangements have been made for instructing all field hospital companies and ambulance companies of the Organized Militia. To encourage the different States having these organizations to send them to these camps the Federal Government will pay all transportation and subsistence from "Encampment and Maneuver" funds, and without cost to the States concerned. The salient idea is that the sanitary troops of the Organized Militia shall take with them to camps only their personal equipment, and that the personnel of these units will be assigned to the Regular Organizations for drill and instruction. It is believed these camps will be of the greatest value to the organizations attending them, in view of the fact that they will be assigned to Regular field hospital and ambulance companies for drill and instruction, thereby receiving the benefit and training of experienced officers and non-commissioned officers, with complete equipment, trained animals, etc. The programs to be carried out at these various camps will be found on pages 343 to 345.

Gorgas Prize Medal.

Referring to the Gorgas Prize Medal, to be awarded yearly by the Association of the Medical Reserve Corps, U. S. Army, New York State Division, the Board of Award makes the following announcement:

The competition is open to medical officers of the Army, officers of the Medical Reserve Corps of the Army, and medical officers of the Organized Militia.

The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medico-military subject; preference being given to papers on a medico-military subject.

The medal will be awarded only for papers of exceptional value.

The Board of Award consists of three members of the Faculty of the Army Medical School, appointed by the Surgeon General, U. S. Army.

The papers should be submitted to the Board of Award, Gorgas Prize Medal, by March 31 of each year, and should be addressed to the Presi-

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dent of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C.

The award will be announced at the graduation exercises of the Army Medical School, on May 31 of each year.

WAR NOTES

Honors to Medical Officers.—King George of England has appointed Lieut. Edmund Hume Moore, R. A. M. C., a Companion of the Distinguished Service Order, in recognition of galantry and devotion to duty. On February 23, near Richebourg l'Avous, Lieutenant Moore went in with another officer and stretcher-bearer to within 150 yards of the enemy's line to attend to a severely wounded soldier. The stretcher-bearer was wounded and Lieutenant Moore remained in attendance on him. On the following day this officer went to the assistance of a wounded man under the aimed fire of the enemy, dressed the man's wounds and was immediately afterward wounded.——The King has also conferred the Military Cross on Lieut. T. W. Clarke, R. A. M. C., Special Reserve, for conspicuous gallantry and devotion to duty. On March 5, at Neuve Eglise, when the Fourteenth Field Ambulance dressing station was destroyed by shell fire, one officer and five men being killed and nineteen wounded therein, Lieutenant Clarke continued to attend to the wounded until he collapsed from his own wound.

Medical History of the War.—With a view to the compilation of an adequate medical history of the present war it has been considered desirable that a consultative body should be formed to consider the lines upon which the history should be laid down. It is hoped that the work will be on a scale commensurate with the importance of the campaign, and that it should contain, in addition to the historical and statistical details of the work of the Army Medical Service and its adjuncts on account of the various experimental researches which are now being carried on in connection with the maintenance of the health of the military forces, the treatment of the wounded, and the diseases of military importance.

A committee, under the presidency of the Director-General, Army Medical Service, has accordingly been formed to provide the necessary co-ordinating authority for the proposed work.

In connection with each of the chief subdivisions of the work military and civilian members have been appointed, except in the case of the Section of Hygiene, for which both members are military.

The constitution of the committee, under the presidency of the Director-General, is as follows:

MEDICINE.

Lieutenant-Colonel O. L. Robinson, R. A. M. C.
Professor Sir William Osler, Bt., M. D., F. R. S.

SURGERY.

Lieutenant-Colonel E. M. Pilcher, D. S. O., M. B., F. R. C. S., R. A. M. C.
Colonel F. F. Burghard, M. D., M. S., F. R. C. S.

PATHOLOGY AND BACTERIOLOGY.

Colonel Sir William B. Leishman, C. B., F. R. C. P., K. H. P., F. R. S.
Captain F. W. Andrewes, M. D., F. R. S.

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STATISTICS.

Lieutenant-Colonel H. P. W. Barrow, R. A. M. C.
John Brownlee, M. D., D. Sc.
Lieutenant-Colonel W. N. Barron, M. V. O., R. A. M. C.

HYGIENE AND SANITATION.

Colonel W. H. Horrocks, M. B., K. H. S.
Lieutenant-Colonel W. W. O. Beveridge, D. S. O., M. B., R. A. M. C.

HISTORICAL AND SECRETARICAL.

Captain F. S. Brereton, R. A. M. C.
W. M. Fletcher, M. D., Sc. D., F. R. S.

In each section the members of the committee have been given authority to co-opt for the purposes of the section other persons, and it is hoped that in the various sections the best results of the varied experience now being gained will be selected and arranged for publication in the medical history, and not left to be distributed in scattered communications published independently by individual observers.

LETHAL GASES IN WAR

Official Report.*

A report has been furnished to the War Office by Dr. J. S. Haldane, F. R. S., the authority on causes of death in colliery and mine explosions, who was sent to France to investigate the nature of the gases used by the Germans in their attack upon the French and British lines. In the cases examined, both living and dead, it was found that the injuries—bronchitis—were due to a poisonous gas, chlorine or bromine. The report of Dr. Haldane follows:

General Headquarters, British Expeditionary Force,
April 27, 1915.

To Earl Kitchener, Secretary of State for War.

My Lord: I have the honor to report that, as requested by you yesterday morning, I proceeded to France to investigate the nature and effects of the asphyxiating gas employed in the recent fighting by the German troops. After reporting myself at General Headquarters I proceeded to Bailleul with Sir Wilmot Herringham, Consulting Physician to the British Force, and examined with him several men from Canadian battalions who were at the No. 2 Casualty Clearing Station, suffering from the effects of the gas.

These men were lying struggling for breath, and blue in the face. On examining the blood with the spectroscope and by other means, I ascertained that the blueness was not due to the presence of any abnormal pigment. There was nothing to account for the blueness (cyanosis) and struggle for air but the one fact that they were suffering from acute bronchitis, such as is caused by inhalation of an irritant gas. Their statements were that when in the trenches they had been overwhelmed by an irritant gas produced in front of the German trenches, and carried towards them by a gentle breeze.

*From the London Times (Weekly Edition), April 30, 1915.

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One of them died shortly after our arrival. A post-mortem examination was conducted in our presence by Lieutenant McNee, a pathologist by profession, of Glasgow University. The examination showed that death was due to acute bronchitis and its secondary effects. There was no doubt that the bronchitis and accompanying slow asphyxiation were due to the irritant gas.

Lieutenant McNee had also examined yesterday the body of a Canadian sergeant who had died in the clearing station from the effects of the gas. In this case, also, very acute bronchitis and œdema of the lungs caused death by asphyxiation.

A deposition by Captain Bertram, Eighth Canadian Battalion, was carefully taken down by Lieutenant McNee. Captain Bertram was then in the clearing station, suffering from the effects of the gas and from a wound. From a support trench, about 600 yards from the German lines, he had observed the gas. He saw, first of all, a white smoke rising from the German trenches to a height of about three feet. Then in front of the white smoke appeared a greenish cloud, which drifted along the ground to our trenches, not rising more than about seven feet from the ground when it reached our first trenches. Men in these trenches were obliged to leave, and a number of them were killed by the effects of the gas. He made a counter-attack about fifteen minutes after the gas came over, and saw twenty-four men lying dead from the effects of the gas on a small stretch of road leading from the advanced trenches to the supports. He was himself much affected by the gas still present, and felt as if he could not breathe.

The symptoms and the other facts so far ascertained point to the use by the German troops of chlorine or bromine for purposes of asphyxiation.

There are also facts pointing to the use in German shells of other irritant substances, though in some cases at least these agents are not of the same brutally barbarous character as the gas used in the attack on the Canadians. The effects are not those of any of the ordinary products of combustion of explosives. On this point the symptoms described left not the slightest doubt in my mind.

Professor H. B. Baker, F. R. S., who accompanied me, is making further inquiries from the chemical side.

I am, my Lord, your obedient servant, J. S. HALDANE.

ORGANIZATION OF AMERICAN PHYSICIANS FOR RELIEF OF THE BELGIAN PROFESSION.

The work of the American committee has been such that practically every Belgian civilian has received some share of the food supplies being distributed. The report of the treasurer for the week ending March 13, 1915, lists the following contributions:

Dr. Frank Slopansky, Helper, Utah	$ 5.00
McKees Rocks Medical Society, McKees Rocks, Pa.	6.50
Dr. James Anders, Philadelphia, Pa.	15.00
Dr. Charles M. Green, Boston, Mass.	25.00
Dr. J. M. Miller, Hickory, Pa.	5.00
Dr. John Woodman, New York, N. Y.	10.00
Dr. R. L. Bradley, Roswell, N. M.	5.00
Dr. Everett D. Peak, Thompson Falls, Mont.	25.00

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Dr. Charles L. Minor, Asheville, N. C.	15.00
J. M. H., Fort Logan H. Roots, Ark.	5.00
Dr. Fred E. Thompson, Detroit, Mich.	25.00
Dr. Alfred H. Tickell, Nevada City, Cal.	2.00
Dr. Z. H. McClanahan, Colorado Springs, Colo.	5.00
Dr. C. Dunbar Roy, Atlanta, Ga.	5.00
Hempstead Academy of Medicine, Portsmouth, Ohio.	10.00
Dr. Halsey Beach Loder, Boston, Mass.	5.00
Dr. and Mrs. James R. Judd, Honolulu, Hawaii.	25.00
Dr. Hugh T. Patrick, Chicago, Ill.	25.00
Receipts for week ending March 18.	$ 218.50
Previously reported receipts.	4,611.50
Total receipts.	$ 4,830.00
Previously reported disbursements.	$4,614.60
Disbursements week ending March 13, 90 boxes at $2.30.	207.00
Total disbursements.	4,821.60
Balance	$ 8.40

THE REPORT FOR THE WEEK ENDING MARCH 20, 1915.

Sebastian County Medical Society, Fort Smith, Ark.	$ 15.00
Dr. F. W. Johnson, Boston, Mass.	25.00
Dr. E. P. Quain, Bismarck, N. D.	10.00
Dr. N. O. Ramstad, Bismarck, N. D.	10.00
Dr. Haven Emerson, New York, N. Y.	15.00
Dr. Edward B. Angell, Rochester, N. Y.	10.00
Dr. T. A. Davis, Chicago, Ill.	25.00
New Bedford Medical Society, New Bedford, Mass.	50.00
Dr. Newton B. Waller, New York, N. Y.	5.00
Dr. Charles G. Eicher, McKees Rocks, Pa.	5.00
Dr. William H. Perry, Sterling, Ill.	5.00
Dr. Frederick A. Spafford, Flandreau, S. D.	10.00
Dr. George L. Johnson, Newfolden, Minn.	1.00
Salt Lake County Medical Society, Salt Lake City, Utah.	100.50
Dr. and Mrs. Clem D. McCoy, Kenton, Ohio.	50.00
Dr. E. A. Weiss, Pittsburgh, Pa.	10.00
Dr. Hubert Claytor, Hopkins, S. C.	5.00
Dr. C. E. Goodman, Virginia, Minn.	5.00
Tri-County Medical Society, Copiah-Lincoln-Pike Counties, Miss.	10.00
Dr. Harold W. Dana, Boston, Mass.	25.00
Receipts for the week ending March 20.	$ 391.50
Previously reported receipts.	4,830.00
Total receipts.	$ 5,221.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20.	$3,575.00
542 standard boxes of food at 2.30.	1,246.60
Disbursements for the week ending March 20:	
178 standard boxes of food at $2.30	397.90
Total disbursements.	5,219.50
Balance	$ 2.00

THE REPORT FOR THE WEEK ENDING MARCH 27, 1915.

Dr. H. N. Torrey, Detroit, Mich.	$ 10.00
Faulkner County Medical Society, Conway, Ark.	25.00
Newburyport Medical Club, Newburyport, Mass.	20.00
Lieut.-Col. F. P. Reynolds, M. C., U. S. A., Honolulu, H. T.	25.00
Dr. Waldo Richardson, Seattle, Wash.	5.00
Mrs. O. W. Johnson, Racine, Wis.	5.00
Dr. Joseph Brettauer, New York, N. Y.	25.00

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Dr. Lewis Gregory Cole, New York, N. Y.	25.00
Dr. J. N. Hall, Denver, Colo.	5.00
Dr. J. B. Rogers, Independence, Iowa.	5.00
Medical Society of the County of Westchester, White Plains, N. Y.	25.00
Dr. Alex. Marcy, Jr., Riverton, N. J.	10.00
Dr. S. R. Woodruff, Bayonne, N. J.	5.00
Dr. G. C. McMaster, Pittsburgh, Pa.	5.00
Dr. Charles G. Mixter, Boston, Mass.	10.00
Dr. S. G. Laws, Spartanburg, S. C.	5.00
American Surgeons' Clinical Tour of 1914, Galesburg, Ill.	150.75
Colorado Chapter of A. M. P. O. Medical Fraternity, Denver, Colo.	50.00
Boston Society of Psychiatry and Neurology, Boston, Mass.	100.00
Routt County Medical Society, Steamboat Springs, Colo.	10.00
Dr. Bertram M. Bernheim, Baltimore, Md.	10.00
Receipts for week ending March 27	$ 530.75
Previously reported receipts	5,221.50
Total receipts	$ 5,752.25
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
715 standard boxes of food at 2.30	1,644.50
Disbursements for week ending March 27:	
230 standard boxes of food at $2.30	529.00
Total disbursements	5,748.50
Balance	$ 3.75

REPORT FOR THE WEEK ENDING APRIL 3, 1915.

Dr. John Lewis Stevens, Mansfield, Ohio	$ 5.00
Hoquiam Surgical Club, Hoquiam, Wash.	10.00
Dr. J. D. Griffith, Kansas City, Mo.	5.00
Dr. Philip F. Williams, Philadelphia, Pa.	5.00
Visiting Nurse Association of Chicago, Chicago, Ill.	12.00
Dr. Burnley Lankford, Norfolk, Va.	5.00
Dr. Irene M. Morse, Clinton, Mass.	3.00
The Homochitto Valley Medical Society, Natchez, Miss.	14.25
Dr. T. L. Macdonald, Washington, D. C.	10.00
The Yankton District Medical Society, Yankton, S. D.	50.00
Dr. James D. Voorhees, New York, N. Y.	25.00
Receipts for week ending April 3	144.25
Previously reported receipts	5,752.25
Total receipts	$ 5,896.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
945 standard boxes of food at 2.30	2,173.50
Disbursements for the week ending April 3:	
64 standard boxes of food at $2.30	147.20
Total disbursements	5,895.70
Balance	$ .80

THE REPORT FOR THE WEEK ENDING APRIL 10, 1915.

The Cooke County Medical Society, Gainesville, Tex.	$ 15.00
The Sedgwick County Medical Society, Wichita, Kans.	25.00
Dr. Carl B. Davis, Chicago, Ill.	10.00
Dr. R. C. Dorr, Batesville, Ark.	5.00
Anonymous, "J," New York, N. Y.	5.00
Dr. George Leonard Schadt, Springfield, Mass.	5.00
Dr. Mark T. Goldstine, Chicago, Ill.	10.00
Dr. Lomax Gwathmey, Norfolk, Va.	25.00
Dr. J. C. Chipman, Sterling, Colo.	5.00
Miss Grace Hutchison, Canton, N. Y.	2.25

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Dr. Brooke M. Anspach, Philadelphia, Pa	5.00
Dr. J. B. Haskins, Chattanooga, Tenn	15.00
Dr. Fred W. Phifer, Wheatland, Wyo	5.00
Dr. Henry P. Brown, Jr., Philadelphia, Pa	10.00
Dr. Floyd W. McRae, Atlanta, Ga	10.00
Dr. William L. Rodman, Philadelphia, Pa	25.00
Anonymous, "F," St. Johnsbury, Vt	10.00
Dr. Joseph P. Murphy, Brooklyn, N. Y	5.00
Dr. Rudolph Matas, New Orlears, La	25.00
Dr. Neal N. Wood, First Lieut. M. C., U. S. A., Schofield Barracks, Hawaii	5.00
Cumberland County Medical Society, Bridgeton, N. J	10.00
Gonzales County Medical Society, Gonzales, Tex	10.00
Receipts for the week ending April 10	$ 242.25
Previously reported receipts	5,896.50
Total receipts	$ 6,138.75
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,009 standard boxes of food at 2.30	2,320.70
Disbursements for the week ending April 10:	
105 standard boxes of food at $2.30	241.50
Total disbursements	6,137.20
Balance	$ 1.55

One box of surgical instrument sent to the American Commission for Relief in Belgium, through *Surgery, Gynecology and Obstetrics*, without name of donor and without a list of contents.

THE REPORT FOR THE WEEK ENDING APRIL 17, 1915.

Fort Wayne Medical Society, Fort Wayne, Ind	$ 25.00
Ramsey County Medical Society, St. Paul, Minn	25.00
The New Castle Physicians' Club, New Castle, Pa	10.00
The Harrison County Medical Society, Gulfport, Miss	25.00
The Cumberland County Medical Society, Portland, Me	25.00
The Waterbury Medical Association, Waterbury, Conn	13.00
Dr. William T. Hamilton, Philadelphia, Pa	5.00
Dr. Charles Alfred Dukes, Oakland, Cal	5.00
Dr. P. St. L. Moncure, Norfolk, Va	5.00
Dr. R. T. Stratton, Oakland, Cal	5.00
Dr. R. J. E. Scott, New York, N. Y	5.00
Dr. W. C. Cahall, Germantown, Pa	2.75
Dr. Richard Dewey, Wauwatosa, Wis	10.00
Dr. E. H. Ruediger, Manila, P. I	10.00
Dr. Lucretius H. Ross, Bennington, Vt	10.00
Mr. A. W. Burnham, Pittsburgh, Pa	5.00
Receipts for week ending April 17	$ 185.75
Previously reported receipts	6,138.75
Total receipts	$ 6,324.50
Disbursements for week ending April 17:	
80 Standard boxes of food at $2.30	$ 184.00
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	3,575.00
1,114 standard boxes of food at 2.30	2,562.20
Total disbursements	6,321.20
Balance	$ 3.30

THE REPORT FOR THE WEEK ENDING APRIL 24, 1915.

Dr. George W. Crile, Cleveland, Ohio	$ 100.00
Salt Lake County Medical Society, Salt Lake City, Utah (third contribution)	21.00
Dr. C. P. Thomas, Los Angeles, Cal	5.00

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Portland Medical Club, Portland, Me	25.00
Dr. C. H. Henninger, Pittsburgh, Pa	5.00
Dr. J. J. Buchanan, Pittsburgh, Pa	25.00
Receipts for the week ending April 24	$ 181.00
Previously reported receipts	6,324.50
Total receipts	$ 6,505.50
Disbursements for the week ending April 24:	
80 standard boxes of food at $2.30	$ 184.00
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	3,575.00
1,194 standard boxes of food at 2.30	2,746.20
Total disbursements	6,505.20
Balance	$ .30

THE REPORT FOR THE WEEK ENDING MAY 1, 1915.

Dr. N. D. Murphy, Bangor, Mich	$ 25.00
Col. W. H. Arthur, M. C., U. S. A., San Francisco, Cal	10.00
Dr. Augustus A. Eshner, Philadelphia, Pa	10.00
Dr. S. W. Goddard, Brockton, Mass	10.00
Dr. Albert M. Judd, Brooklyn, N. Y	5.00
Dr. Calvin F. Barber, Brooklyn, N. Y	10.00
The Mount Vernon Medical Society, Mount Vernon, N. Y	10.00
Receipts for the week ending May 1	$ 80.00
Previously reported receipts	6,505.50
Total receipts	$ 6,585.50
Disbursements for the week ending May 1:	
35 standard boxes of food at $2.30	$ 80.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	3,575.00
1,274 standard boxes of food at 2.30	2,930.20
Total disbursements	6,585.70
Deficit	$ .20

THE REPORT FOR THE WEEK ENDING MAY 8, 1915.

The Medical Society of St. Lawrence County, Gouverneur, N. Y	$ 25.00
The Orange County Medical Association, Santa Ana, Cal	25.00
Dr. Parke W. Hewins, Wellesley Hills, Mass	25.00
Dr. Emma B. Culbertson, Boston, Mass	25.00
Dr. L. L. McArthur, Chicago, Ill	25.00
Dr. V. B. Jackson, Washington, D. C	10.00
Receipts for the week ending May 8	$ 135.00
Previously reported receipts	6,585.50
Total receipts	$ 6,720.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,309 standard boxes of food at 2.30	3,010.70
Total disbursements	6,585.70
Balance	$ 134.80

THE REPORT FOR THE WEEK ENDING MAY 15, 1915.

Dr. Franklin B. Miller, Pittsburgh, Pa	$ 25.00
Dr. N. S. Jarvis, Captain U. S. A., New York, N. Y	15.00
Dr. Charles G. R. Jennings, Elmora, N. Y	28.00
Dr. H. E. Jenkins, P. A., Surgeon, U. S. N., Port Royal, S. C	5.00

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Dr. Luther G. Paul, Boston, Mass.	5.00
Dr. M. C. Smith, Lynn, Mass.	5.00
Arkansas Medical Society, Little Rock, Ark.	50.00
Dr. Charles Henderson Miller, Chicago, Ill.	10.00
Receipts for the week ending May 15	$ 140.00
Previously reported receipts	6,720.50
Total receipts	$ 6,860.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,309 standard boxes of food at 2.30	3,010.70
Total disbursements	6,585.70
Balance	$ 274.80

Through an error in the report of April 17 the contribution of the Bennington County Medical Society, Bennington, Vt., was credited to the secretary, Dr. Lucretius H. Ross.

The pictures of wretchedness in Belgium grow more and more appalling from day to day. Miss Winifred Holt, Secretary of the New York Association for the Blind, has just returned from Europe where she went in the interest of the blind Belgian refugees. She says there are no exact data, but it is estimated that one person in every 1,200 in Belgium is either partially or totally blind, or about 8,000. When Belgium became the hotbed of war there were thirteen institutions for the blind, deaf and dumb. These were all wrecked and their sorry inhabitants poured forth in a mad rush of surging masses of blind men and women and children, seeking such guidance as they could get, groping for places of safety. They must now be scattered among the helpless, starving, unfortunate refugees standing in the breadline that stretches all over Belgium.

The President of the National Relief Commission of Brussels asserted on March 25th, that before the next harvest, 2,500,000 Belgians will be in the breadline. Foodstuffs must be continued to be provided in the fairly regular way in which they have been supplied heretofore. Belgium has been saved from the intermittent periods of starvation by the personal sacrifices of the Directors of the American Commission, who have at these times pledged their personal credit for as much as $10,000,000. All honor to the Commissioners.

The Commission for Relief in Belgium, according to Mr. Bates, its vice-chairman, was granted by the German government not only the sole right to transport food into Belgium but given the active sympathy and aid of the German military authorities. Despite reports to the contrary, not one pound of food sent in has been appropriated.

The contributions made by American doctors, through the Committee of American Physicians for the Aid of the Belgian Profession, are placed in the hands of the above commission for distribution among the members of the Belgian profession and their families.

Hon. Brand Whitlock, American minister at Brussels, is credited with saying on March 17, that the food then in Belgium would not last longer than April 1.

As the war continues the need for aid to Belgium daily becomes greater; in fact, for at least six months after the ending of the war this duty of feeding the starving must be continued. The infant mortality is enormous because of the lack of adequate nourishment. The world looks to America as the great neutral nation to give aid in this time of stress.

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Dr. J. Riddle Goffe of New York says that in a letter just received from Dr. Jacobs of Brussels, he summarized the situation of our Belgian colleagues as follows:

1. Many doctors were killed, consequently the widows and orphans deprived of everything, are without a home, without means, with nothing left.

2. All country doctors or those living in small towns are ruined by loss of every possession they had.

3. Doctors in large cities are ruined by commandeering, war-levies, etc.

4. The largest part of Belgian population has become the prey of infectious diseases, epidemics, with a large infant mortality, etc.

5. Ruined civilian populations cannot pay for medical advice, consequently several physicians are compelled to work for nothing, others are obliged to undertake any labor for gain as a means of livelihood with results that are terrible for the population.

Mr. Harry E. V. Brittain, founder of the Society of Pilgrims and member of the Belgian Finance Committee in London, landed in New York last week. He says:

"Consider for a moment what your Belgian Commission has done. With no hope of reward save the inarticulate thanks of a nation half throttled and daily in danger of starvation, your countrymen in England and Belgium backed, of course, by yourselves, have tackled a job bigger than that which confronts the commissariat of any army in Europe.

"If for no other reason, for this alone the neutrality of the United States should be welcomed by every one of my fellow-countrymen. Through your neutrality you have been able to accomplish the greatest feat of the war. Mr. Hoover's commission has become the one power—the really one neutral power—respected by all nations. It was organized by Americans, it is run by Americans, and if any one ever says that the neutrality of the United States in the greatest of all wars was merely passive circumspection, history will haul him up as a liar, and fling in his face an achievement that General Grant or General Lee would have admitted to be more to their credit than any of the many victories they gained by strategic genius.

"Your flag has safeguarded more relief than the philanthropy of the whole world ever dreamed that it would be asked to supply. Under the Stars and Stripes a distressed civilian army, greater than the combined militant armies of France and Germany, is being kept alive. Impelled by humanity and guided by an efficiency that is the envy of every European Government, you have pierced the lines of all armies, broken all blockades, and gained the first really decisive victory of the war."

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Obituaries

Brigadier General William Henry Forwood, Surgeon General U. S. Army (retired), formerly a member of the Association, died at his home in Washington, May 11, after a prolonged illness, aged 76.

General Forwood was born in Brandywine Hundred, Delaware, September 7, 1838. He attended a private select school until his fourteenth year, and then, after a course in the schools of Chester, Pa., spent two years as a resident student in the Chester Academy, from which he was graduated in 1857. He then entered the Medical Department of the University of Pennsylvania at Philadelphia, and was graduated therefrom in March, 1861. On August 5 of the same year he was appointed Assistant Surgeon in the Medical Department of the Army.

The medical teaching positions held by General Forwood included those of Professor of Surgical Pathology in Georgetown University in Washington, D. C., and Professor of Military Surgery in the Army Medical School at Washington, D. C. Of the latter institution he also served as president.

His hospital service included duty as executive officer of the Seminary Hospital, Georgetown, D. C.; the Satterlee Hospital, Philadelphia; the Whitehall General Hospital of two thousand beds near Bristol, Pa., during the Civil War; attending surgeon to Barnes Hospital, Soldiers' Home, Washington, D. C., from May, 1890, to December, 1898; organizer and superintendent of the General Hospital at Savannah, Ga., and of the Military Camp Hospitals at Montauk Point, Long Island, during the Spanish-American War.

Among his contributions to medical literature are articles on *Sphenes from Delaware County, Pennsylvania,* 1876; *Observations on Flora, etc., During Journey Through Portions of Wyoming and Montana,* 1881; *Geologic and Botanic Report of Explorations of Parts of Wyoming, Idaho and Montana,* 1882; *Labor Among Primitive Peoples,* 1884; and *Hydrophobia in Imagination,* 1886.

His society affiliations included Fellowship in the American Medical Association and the American Academy of Medicine, and membership in the Philadelphia Academy of Natural Sciences.

He became Captain and Assistant Surgeon in the Army, July 28, 1866; ten years later he was made Major and Surgeon; he became Lieutenant Colonel in 1891; Colonel and Assistant Surgeon General on May 3, 1897; was nominated Surgeon General with rank of Brigadier General, June 8, 1901, and was retired by operation of law on reaching the age of 64 years, September 7 of the same year.

During his long service, General Forwood was on duty as Surgeon of the Fourteenth Infantry and Acting Medical Director of Sykes' Division, Fifth Corps, Army of the Potomac in the Field in 1862; then he was in the office of the Medical Director, Washington, for four months, and for the succeeding eight months was Surgeon of the Sixth Cavalry, Stoneman's Division, Army of the Potomac, in the raid toward Richmond, and during this tour of duty he was severely wounded in battle.

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Brigadier General William Henry Forwood, U. S. Army.

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From April to June, 1864, he was in charge of the medical storeship, *Marcy C. Day*. In 1865 he was Surgeon of the Second Cavalry in the campaign against Indians for ten months, and then for nearly four years was Post Surgeon on the frontier in the Department of the Missouri. This duty was followed by a similar duty at Fort Brady, Mich., and then duty successively in the Department of Texas; in the Department of the South and in the Department of the Platte until November, 1882, after which he accompanied the military connoissance and exploring expeditions through Wyoming, Montana and Idaho as Surgeon and naturalist during the next three summers. In 1883 he became attending Surgeon, Headquarters, Division of the Missouri, at Chicago, and then Post Surgeon in the Department of the Dakota, after which he was on duty in Washington for eight years with numerous detached service assignments as president or member of Army Medical Examining Boards and many other boards, examination of volunteers and other duties. In December, 1898, he was appointed Chief Surgeon of the Department of California, and from June 15, 1901, until the date of his nomination as Surgeon General, he was on duty in the Surgeon General's office. Washington, D. C.

Chief among his contributions to military medical literature are the articles, *Arrow Head as the Nucleus of Vesical Calculus,* which appeared in 1871; *Shall Army Medical Officers Engage in Private Practice,* 1884; *Weapons of War,* 1894; *Management of a Post Hospital,* 1894; *Chapter on Military Surgery in "System of Surgery by American Authors,"* 1895; *Diagnosis and Identification Tags,* 1895; *Plea for Earlier and More Permanent Treatment of the Wounded on and Near the Battlefield,* 1896; *Hernia Operations,* 1896; *Section on Military Surgery* in the *International Text Book of Surgery,* 1900, and *Selection and Early Care of Recruits for the Military Service* in 1898.

Geeral Forwood had a long and distinguished military record. During the Civil War he participated in twelve battles and many encounters of lesser magnitude, in which his coolness under fire was noteworthy and his dash and gallantry evoked the admiration of all with whom he served. He was at one time captured by Mosby's men, but refused to accept parole, demanding release as a medical officer. This was not granted and he escaped after a perilous journey through forests and swamps. His superb physical courage was supplemented by moral intrepidity. He not only was exposed to disease but sought opportunities to study the epidemics which from time to time have occurred in this country. These included an epidemic of cholera at Fort Riley in 1863 and one of yellow fever at quarantine near Philadelphia in 1870, where he spent a leave of absence in the study of this disease at first hand.

General Forwood wa sa military officer of exceptionally fine record. a deep student, an executive officer of unusual ability, a man of wide culture, an honor to the Army and to mankind.

Sir George Turner, aged 67, Medical Officer of Health of the Colony of the Cape of Good Hope and later of the Transvaal, a sanitarian, world famous, died from leprosy, March 12, 1915, at his home, Colyton, Devonshire, England.

Young Turner entered on his medical career at Guy's Hospital, London, and soon after graduation began his life work as a sanitarian as Medical Officer of Health of the combined sanitary districts of Hertfordshire and

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Essex. In 1882 he was appointed lecturer on hygiene in Guy's Hospital and later was made examiner for the diploma in public health for the University of Cambridge and the Conjoint Board.

He was made Medical Officer of Health of the Colony of the Cape of Good Hope in 1895 and a year later succeeded Professor Koch as Director of the Rinderpest Experimental Station at Kimberley. Two years later he introduced a system of simultaneous inoculation of virus and serum by means of which the disease was stamped out.

On account of the ravages of enteric fever and dysentery during the Boer War, Dr. Turner was borrowed from the Cape Government by Lord Roberts and went to Pretoria as sanitary adviser. In 1901 he was appointed Medical Officer of Health of the Transvaal and in the course of his duties had in charge the Pretoria Leper Asylum. As he found it impossible to obtain a resident medical officer at the Leprosarium he voluntarily undertook this work and while there undoubtedly contracted the disease which ultimately caused his death.

Rinderpest recurred in South Africa in 1907, and through Dr. Turner's efforts, was eradicated in less than twelve months. In 1903, Dr. Turner was made a member of the Legislative Council of the Province; a year later was appointed Commissioner of the Census and also served as Justice of the Peace for the Cape, Transvaal and Orange River Colonies. At the age of 60 he was retired and went to live in Aberdeenshire, but two years later, having discovered that he was a leper, he moved to Colyton.

He was knighted by the king, January 1, 1913. Up to two days before his death Sir George was busily occupied in medical work, preparing a thesis on leprosy for his doctorate degree at Cambridge and observing closely and recording the symptoms of the disease in his own case.

The life and work of Sir George Turner furnish an example of unswerving fidelity to duty well worthy of emulation. He was a great lover of truth, a firm and strong ally, a loyal friend. The courage which characterized his life was manifested especially during the four years of his leprosy.

Captain George Clarence Gliddon, Canadian A. M. C., aged 26, a graduate of Toronto University in 1914, R. M. O., of the 10th Battalion, 2nd Brigade, First Canadian Expeditionary Force, who was seriously wounded at the battle of Langemarck, Flanders, died from his wounds May 14, 1915.

Major William P. Dillon, Canadian A. M. C., and in command of a Field Hospital with the First Canadian Expeditionary Force, a graduate of McGill University, Montreal, in 1904, died in General Hospital No. 2, located in the rear of the British lines near Ypres, May 13, 1915.

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